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METHOD OF PAYMENT		FEE CALCULATION (continued)																																																																																																																																																																																										
<p>1. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:</p> <p>Deposit Account Number: 06-2375 for Order No. 09804877</p> <p>Deposit Account Name: Fulbright & Jaworski L.L.P.</p> <p><input checked="" type="checkbox"/> Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17 <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27</p> <p>2. <input type="checkbox"/> Payment Enclosed</p> <p><input type="checkbox"/> Check <input type="checkbox"/> Credit Card <input type="checkbox"/> Money Order <input type="checkbox"/> Other</p>		<p>3. 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SUBMITTED BY		Complete (if applicable)	
Name (print/type)	Melissa W. Acosta	Registration No. (Attorney/Agent)	45,872
Signature		Telephone	(713) 651-5407
		Date	October 15, 2001

Fee Transmittal

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EK102657398US, in an envelope addressed to: Commissioner for Patents, Washington, DC 20231, on the date shown below.

Dated: October 15, 2001 Signature: (Staci Harris)

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Dated: October 15, 2001

Signature:

Staci V. Harris
(Staci V. Harris)

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Lars Abrahmsen et al.

Docket No.: HO-P01525US0

Application No.: 08/765,695

Group Art Unit: 1644

Filed: July 25, 1997

Examiner: R. Schwadron

For: A CONJUGATE BETWEEN A MODIFIED
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APPELLANT'S BRIEF

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TABLE OF CONTENTS

	PAGE
I. REAL PARTY IN INTEREST	4
II. RELATED APPEALS AND INTERFERENCES	4
III. STATUS OF CLAIMS	4
IV. STATUS OF AMENDMENTS	4
V. SUMMARY OF INVENTION	4
VI. ISSUES.....	5
VII. GROUPING OF CLAIMS	5
VIII. ARGUMENTS	5
A. Claim 36 is non-obvious	5
B. IDS complies with 37 CFR 1.97(c).....	8
IX. CONCLUSION	9
APPENDIX A	
APPENDIX B – Copies of case law cited.	
APPENDIX C – Copies of journal articles cited.	

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APPELLANT'S BRIEF

Attention: Board of Patent Appeals and Interferences
Commissioner for Patents
Washington, DC 20231

Dear Sir:

Appellants hereby submit an original and two copies of this Appeal Brief to the Board of Patent Appeals and Interferences in response to the Advisory Action dated July 24, 2001 and the final Office Action dated April 17, 2001. This brief is in furtherance of the Notice of Appeal, filed in this case on August 15, 2001.

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is the assignee, Pharmacia & Upjohn AB.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences, which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 14-51 were originally filed in the present application. During prosecution, claims 52-57 were added, claims 14-35, 39-43 and 48-51 were canceled, claims 53-57 were withdrawn from consideration but not canceled and claims 36-38 and 44-47 were amended. The claims on appeal are claims 36-38, 44-47 and 52 of which a copy of the claims in what Appellants believe to be the correct status is attached as Appendix A.

IV. STATUS OF AMENDMENTS

Appellants have made no amendments subsequent to the final rejection.

V. SUMMARY OF INVENTION

The present invention uses a conjugate comprising a mutated superantigen to treat a disease or a condition in a mammal. The mutated superantigens are based upon Appellant's discovery that different regions of superantigens are responsible for binding the MHC class II antigens. Mutations in these regions can affect MHC class II binding resulting in decreased toxicity of the superantigens while retaining the therapeutic effects of the superantigens. For example, some of the therapeutic effects include activation of T lymphocytes which results in selective lysis of cells. *See* Specification p. 4, lns., 6-15; p. 9, lns., 18-23; Table III; and p. 22, lns., 4-10.

VI. ISSUES

The issues for the Board's consideration are:

Whether claims 36-38, 44-47 and 52 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Dohlsten et al., PNAS USA 88:9287-9291(1991).

Whether the information disclosure statement complies with 37 CFR § 1.97(c).

VII. GROUPING OF CLAIMS

For purposes of this appeal brief only, the claims should stand or fall separately.

In Section VIII below, Appellants have included arguments supporting the separate patentability of each claim group as required by M.P.E.P. § 1206.

VIII. ARGUMENTS

A. Claim 36 is non-obvious.

The Action rejects claim 36 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Dohlsten et al., PNAS USA 88:9287-9291, 1991. The Examiner contends that Dohlsten allegedly suggests making mutations in the C-terminal region of superantigens in order to reduce Class II MHC antigen binding. Appellants traverse this rejection.

i. Non-enabling Reference Is Not Available Prior Art

The Manual of Patent Examining Procedures (MPEP) sets forth the guidelines or conditions for patentability of non-obvious subject matter under 35 U.S.C § 103 in MPEP § 2141.01. This section clearly states that "before answering Graham's content inquiry, it must be known whether a patent or publication is in the prior art under 35 U.S.C. § 102. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568, 1 USPQ2d 1593, 1597 (Fed. Cir.), cert. denied, 481 U.S. 1025 (1987). Both the Federal Circuit Court and the court of Customs and Patent Appeals have directed the Patent Office to determine if the prior art reference is

available 35 U.S.C. § 102 as an enabling reference. See *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed Cir. 1985), *In re LeGrice*, 301 F.2d 939, 133 USPQ 365, 371 (CCPA 1962).

Appellants have clearly asserted that Dohlsten et al. is a non-enabling reference. Specifically, Dohlsten et al. do not teach or suggest making mutations in any particular region in order to affect class II MHC antigen binding. In addition, Appellants reiterate that the Office has acknowledged in the Office Action of August 16, 1999, page 5 that “Dohlsten et al. do not teach that the superantigen portion of the conjugate has been mutated to show a modified ability to bind class II MHC antigen”.

Although the Office has acknowledged that Dohlsten et al. do not teach that the superantigen portion of the conjugate has been mutated to effect the binding of a Class II MHC antigen, the Office has continued to erroneously interpret statements in Dohlsten et al. The statements in the Dohlsten reference that the Office has erroneously interpreted are: i) “it would be of importance to further perturb MHC class II-dependent CTL activity by reducing the binding of the C215-SEA conjugate for MHC class II molecules” (page 9291, column 1) and ii) and “MHC class II binding has been localized to the C-terminal” (page 9291, column 1). These statements, taken alone or in combination, do not, in fact, teach that class II MHC binding is in the C-terminal region of superantigens. In fact, the next statement on page 9291, column 1 states that “determination of the amino acids necessary for MHC class II binding may provide a rationale to obtain mAb-SEA conjugates with preserve T-cell-activating properties by totally devoid of binding to MHC class II molecules”. Thus, Dohlsten is clearly stating that it is not known what amino acids are required for MHC class II binding. Dohlsten et al. do not provide a guideline to determine which amino acids are necessary for binding. All of these statements clearly indicate that the reference is non-enabling for mutating superantigens to modify their ability to bind to MHC class II.

Further, the second statement, "MHC class II binding has been localized to the C-terminal" (page 9291, column 1), is, in fact, not correct when referring to the location for MHC Class II binding on SEC1 and toxin shock syndrome toxin 1. An immense body of work has shown that the MHC class II binding region of SEB (structural homologue of SEC1) and TSST-1 resides in the N-terminal part of the protein and not in the C-terminal (*see* Kim et al., Science, 1994, 266:1870 (co-crystals of MHC class II antigens and TSST-1); and Jardetzky et al., Nature, 1994, 368:711 (SEB and MHC class II binding)).

Appellants assert that the present invention teaches for the first time the different regions of superantigens that are responsible for binding the MHC class II antigens and that mutations in these regions can affect MHC class II binding. *See* specification p. 23, lns., 12-15.

Appellants strongly contend that Dohlsten et al. is a non-enabling reference under 35 U.S.C. § 102 because it does not sufficiently describe the claimed invention to have placed the public in possession of it. *In re LeGrice*, 301 F.2d 939, 133 USPQ 365, 371 (CCPA 1962).

ii. *Prima facie Case of Obviousness Must be Established*

The Manual of Patent Examining Procedures (MPEP) sets forth the guidelines to establish a *prima facie* case of obviousness of non-obvious subject matter under 35 U.S.C § 103 in MPEP § 2143.3. This section clearly states that three basic criteria must be met to establish a *prima facie* case of obviousness. The three criteria include:

- 1) a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;

- 2) a reasonable expectation of success; and
- 3) the prior art reference must teach or suggest all the claim limitations.

In light of the above criteria, Appellants assert that the Office has not established a *prima facie* case of obviousness to reject the claims under 35 U.S.C. 103. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438, (Fed. Cir. 1991). A *prima facie* case necessitates disclosure of the source for either a suggestion or motivation to modify this reference to produce the present invention, and a reasonable expectation of success of producing the present invention. Dohlsten et al. do not provide a suggestion nor does it provide a reasonable expectation of success of producing a mutated superantigen having modified binding ability. This is clearly indicated by the acknowledgement of the Office that Dohlsten does not teach a mutated superantigen having a modified ability to bind to class II MHC antigens. (See Office Action dated August 16, 1999, p. 5)

Yet further, the court of Customs and Patent Appeals have directed the Patent Office to establish a *prima facie* case by evidence rather than conjecture. *Ex parte Yamamoto*, 575 USPQ2d 1382, 1383, 1384 (CCPA 2000). Appellants assert that the Office has not provided sufficient evidence to establish a *prima facie* case. Appellants assert that it is mere conjecture on the part of the Office that one of skill in the art would be able to identify the region without undue experimentation. If anything, Dohlsten demonstrates the need to identify the regions in superantigens that are necessary for MHC class II binding, but does not provide reasonable enablement for one of skill in the art to obtain these regions without undue experimentation.

Therefore, in view of the above arguments that Dohlsten is a non-enabling reference and that the Office has not established a *prima facie* case of obviousness, Appellants respectfully request that the Board overturn the rejection of the claims for “non-obviousness”.

B. IDS complies with 37 CFR 1.97(c).

The Action contends that the Supplemental Information Disclosure Statement which was submitted on June 21, 2001 did not comply with 37 CFR § 1.97 (c). Appellants traverse.

During the filing of the Notice of Appeal on August 15, 2001, Appellants submitted the Supplemental Information Disclosure Statement with the appropriate fee as indicated in 37 CFR § 1.17(p). Thus, Appellants respectfully request that the Board consider the references contained in the Supplemental Information Disclosure Statement.

IX. CONCLUSION

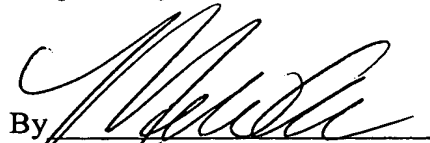
Appellants have provided arguments that overcome the pending rejections. Appellants respectfully submit that the Action's conclusions that the claims should be rejected are unwarranted. It is therefore requested that the Board overturn the Action's rejections.

Appellants hereby authorize the Commissioner to deduct the fee of \$320.00 under CFR § 1.17(c) for filing of the appeal brief from the Fulbright & Jaworski Deposit Account No. 06-2375, Order No. 09804877.

Please date stamp and return the enclosed postcard to evidence receipt of this document.

Dated: October 15, 2001

Respectfully submitted,

By 
Melissa W. Acosta

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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 08/765,695

36. A method for the treatment of a diseased condition in a mammal, which condition means the presence of specific cells that are associated with the condition by the expression of a disease specific cell surface structure, wherein one administers to the mammal a therapeutically effective amount of covalent conjugate that is able to activate T lymphocytes to lyse cells that carry the disease specific cell surface structure and comprises:

- a. a biospecific affinity counterpart that is capable of binding to said surface structure, and
- b. a peptide that
 - i. contains an amino acid sequence that is derived from a superantigen selected from the group consisting of staphylococcal enterotoxin A, B, C₁, C₂, D and E,
 - ii. has the ability to bind to a V β of a T cell receptor, and
 - iii. has been mutated to show a modified ability to bind to MHC class II antigens compared to the superantigens from which the peptide is derived.

37. The method of claim 36, wherein the disease is selected from the group consisting of cancers, viral infections, autoimmune diseases and parasitic infestations.
38. The method of claim 37, wherein the disease is cancer.
44. The method of claim 36, wherein the biospecific affinity counterpart comprises polypeptide structure.
45. The method of claim 44, wherein the biospecific affinity counterpart is selected from the group consisting of an antibody or an antigen-binding fragment thereof.
46. The method of claim 44, wherein the biospecific counterpart and the peptide are fused together.
47. The method of claim 45, wherein the biospecific counterpart and the peptide are fused together.
52. The method of claim 36, wherein the superantigen is staphylococcal enterotoxin A.

APPENDIX B

tiffs who vindicate substantive rights in court. "There is no suggestion in the congressional history of 42 U.S.C. § 1988, nor in the cases that have applied it, that it ought to be read in a niggardly way." *Smith v. Thomas*, 687 F.2d 113, 116 (5th Cir.1982). We do not do so today. The injunction granted below properly safeguarded important First Amendment rights. Finding that this injunction was granted on the central substantive issue and yielded the practical relief sought by plaintiffs, we hold that plaintiffs were prevailing parties entitled to an award of attorney's fees under 42 U.S.C. § 1988. We remand this cause to the district court for a hearing and award of reasonable attorney's fees or an explanation of special circumstances rendering the award of such fees unjust.

REVERSED and REMANDED.

ANDERSON, Circuit Judge, dissenting:

I agree with the majority opinion that the "central issue presented by plaintiffs' complaint was that the solicitation permit requirements imposed upon the Unification Church in its outdoor solicitations were unconstitutional." I also agree that the preliminary injunction afforded relief to plaintiffs on this central issue. I also agree that the summary judgment later entered by the court, granting plaintiffs relief only as to *indoor* solicitation, did not constitute "a favorable judgment on the central issue in the case." At this point, my agreement with the majority opinion ends. I disagree with the majority's conclusion that the relief on the central issue of outdoor solicitation obtained by plaintiffs in the preliminary injunction somehow survives the entry of the later summary judgment. The majority reaches this conclusion notwithstanding the fact that the summary judgment opinion clearly rejected plaintiffs' claim for relief with respect to outdoor solicitation, holding that "the record shows no discrimination by the City in requiring

permits for outdoor solicitation." 538 F.Supp. 514, 517 (S.D.Fla.1984). Whether or not a formal judgment was entered to this effect, as a practical matter, it is clear that the relief obtained by plaintiffs in the preliminary injunction on the crucial issue in the case was vitiated upon entry of the later summary judgment. *Doe v. Busbee*, 684 F.2d 1375 (11th Cir.1982), squarely holds that a plaintiff is not a prevailing party when it obtains initial relief in the district court which is later vacated. In this case, just as in *Doe v. Busbee*, the initial relief obtained by plaintiffs on the crucial issue was vitiated by later court action. I disagree with the majority's conclusion that the instant case is distinguishable from *Doe v. Busbee*, because I disagree with the majority's conclusion that the initial relief obtained by plaintiffs in the preliminary judgment somehow survived the later summary judgment.¹

With respect, I dissent.



PANDUIT CORPORATION, Appellant,

v.

DENNISON MANUFACTURING
CO., Appellee.

Appeal No. 85-1144.

United States Court of Appeals,
Federal Circuit.

Jan. 23, 1987.

Manufacturer of plastic cable ties brought patent infringement action against competitor. The United States District Court for the Northern District of Illinois,

1. Plaintiffs apparently conceded below that the amendment to the ordinance mooted the case. However, even if the instant suit were a catalyst motivating the amendment, the amended ordi-

nance provided no relief with respect to the central issue of outdoor solicitation. The plaintiffs' concession may have been more in the nature of an abandonment.

John F. Grady, Chief Judge, held patent claims invalid. The Court of Appeals, 774 F.2d 1082, reversed, but the Supreme Court, 106 S.Ct. 1578, vacated that ruling and remanded. On remand, the Court of Appeals, Markey, C.J., held that: (1) determination that invention would or would not have been "obvious" is conclusion of law, and (2) competitor failed to carry its burden of proving that claimed inventions would have been obvious.

Affirmed in part, reversed in part, and remanded.

1. Patents ⇨324.5, 324.55(2)

On review of judgment invalidating patent based on conclusion of obviousness, Court of Appeals must consider not only whether there is legal error, but also whether underlying findings are either non-probative, clearly erroneous, or both. 35 U.S.C.A. § 103.

2. Patents ⇨324.60

If district court does not make findings necessary to resolution of obviousness question in patent dispute, and legal error is present, appellate court should vacate in view of that legal error and remand for district court to make missing findings; if unassailable findings are made, but can not support appealed judgment under proper application of law, appellate court may vacate or reverse, but not make its own findings. 35 U.S.C.A. § 103.

3. Federal Courts ⇨850

If findings necessary to support legal conclusion are clearly erroneous, conclusion can not stand.

4. Patents ⇨324.60

To obtain reversal without remand of decisions invalidating patent for obviousness, appellant-patentee must convince Court of Appeals that patent challenger failed at trial to carry its statutory burden of proving by clear and convincing evidence sufficient facts to support obviousness conclusion; one way to do that is to show that proper application of law to unassailable findings compels reversal, while another is to show that findings on which obviousness

conclusion rested are clearly erroneous and that nothing of record warrants further exercise of fact-finding function or indicates any possibility that appealed judgments might be sustained by such exercise. 35 U.S.C.A. §§ 103, 282.

5. Patents ⇨16(1)

Analysis of whether patent is invalid for obviousness begins with key legal question, i.e., what is the invention claimed; another key preliminary legal inquiry is determining what is prior art. 35 U.S.C.A. § 103.

6. Patents ⇨16(2)

In determining scope and content of prior art on question of obviousness, prior patent must be considered in its entirety, i.e., as a whole, including portions that would lead away from the invention in suit. 35 U.S.C.A. § 103.

7. Patents ⇨16(2)

In determining scope and content of prior art on question of obviousness, elements of separate prior patents cannot be combined when there is no suggestion of such combination anywhere in those patents. 35 U.S.C.A. § 103.

8. Patents ⇨16(4)

Court should avoid hindsight in determining scope and content of prior art on question of obviousness. 35 U.S.C.A. § 103.

9. Patents ⇨314(5)

Determination that invention would have been obvious when it was made to one of ordinary skill in the art is conclusion of law based on facts; degree to which it is one of fact is solely that degree required to erect foundation of facts capable of supporting conclusion, those facts having been found by applying correct legal standards and expressed in findings free from clear error and based on clear and convincing evidence. 35 U.S.C.A. § 103.

10. Patents ⇨314(5)

Determination that invention would not have been obvious when it was made to one of ordinary skill in the art is conclusion

of law which is in place at outset of trial; factual questions are those raised by patent challenger in effort to replace existing conclusion with a contrary one, and those, if any, raised by patentee in rebuttal of challenger's case. 35 U.S.C.A. § 103.

11. Patents ⇨324.55(4)

In review of question of patent obviousness, appellate "clearly erroneous" standard is applicable to all findings on scope and content of prior art, differences between prior art and claimed invention, level of skill, and objective evidence; last may include commercial success due to invention, failure of others, long-felt need, movement of the skilled in different direction, skepticism of experts, copying invention in preference to prior art, and other events proved to have actually happened in real world. 35 U.S.C.A. § 103; Fed.Rules Civ.Proc.Rule 52(a), 28 U.S.C.A.

12. Patents ⇨314(6)

It is neither necessary nor appropriate for court to declare patent valid, as statute makes patent presumptively valid when issued; trial court is required only to say whether patent challenger carried its burden of establishing invalidity in particular case before court. 35 U.S.C.A. § 282.

13. Patents ⇨312(1½)

Statutory presumption of patent validity is applicable to all of many bases for challenging patent's validity, and when sole challenge is allegation of obviousness, presumption is that invention would not have been obvious. 35 U.S.C.A. §§ 103, 282.

14. Patents ⇨314(6)

Determination of anticipation may be reached by comparing only claims and prior art disclosures submitted by patent challenger. 35 U.S.C.A. § 102.

15. Patents ⇨314(6)

Determination that patent challenger has not carried its burden of showing obviousness of invention may be reached on consideration of only evidence submitted by patent challenger; determination that challenger has carried burden of establishing obviousness, however, requires full consid-

eration of any objective evidence of nonobviousness presented in rebuttal. 35 U.S.C.A. §§ 103, 282.

16. Patents ⇨312(6)

Challenger of patent on plastic cable ties failed to carry its burden of proving that those cable ties were "obvious" prior to time of patent. 35 U.S.C.A. §§ 103, 282.

17. Patents ⇨314(2)

Valuation of worth of inventor's contribution is left to public, not to judiciary in determining patentability; judge is nowhere authorized to declare patent invalid on his or her personal evaluation.

18. Patents ⇨157(1)

In interpreting patent claims, district court committed fundamental legal error in analyzing each by single-word description of one part of claimed invention; in patent law, word means nothing outside claim and description in specification.

19. Patents ⇨324.55(4)

When prior art is compared with erroneously interpreted claims, in context of "obviousness" determination, findings of differences between prior art and claims will necessarily be clearly erroneous. 35 U.S.C.A. §§ 103, 282.

20. Patents ⇨157(1)

In interpreting claims in context of "obviousness" determination with regard to plastic cable ties, district court erred in reducing claims to single element, i.e., "teeth," "hinge," and "ledge," while dismissing novel structural claim limitations that defined disposition, positioning, relationship, and operation of elements in claim.

Charles F. Pigott, Jr., Pigott, Gerstman & Giehooly, Ltd., of Chicago, Ill., argued for appellant. With him on the brief was Charles R. Wentzel, Panduit Corp., of Tinley Park, Ill., of counsel.

James P. Ryther, McDougall, Hersh & Scott, of Chicago, Ill., argued for appellee. With him on the brief was Clyde F. William, William Brinks Olds Hofer Gilson & Lione,

Ltd., of Chicago, Ill. Also on the brief were James P. Hume, James B. Blanchard, Robert L. Harmon, John J. Pavlak, Cynthia A. Homan, Richard A. Kaplan and Glen P. Belvis, of William Brinks Olds Hofer Gilson & Lione, Ltd., of Chicago, Ill., of counsel.

Donald S. Chisum, University of Washington School of Law, of Seattle, Wash., was on the brief for Amicus Curiae, American Intellectual Property Law Ass'n. Also on the brief was Thomas F. Smegal, President, American Intellectual Property Law, of Arlington, Va.

Before MARKEY, Chief Judge,
COWEN, Senior Circuit Judge, and
NEWMAN, Circuit Judge.

MARKEY, Chief Judge.

On remand from the Supreme Court. Having considered the record, appealed judgment, district court's findings and application of law, arguments in this court and the Supreme Court, and invited briefs of the parties and *amicus* American Intellectual Property Law Association, we respond to the remand and again affirm the judgment on the 35 U.S.C. § 102(g) defense and reverse the judgment on the 35 U.S.C. § 103 defense.

The Remand

In remanding, *Dennison Manufacturing Co. v. Panduit Corp.*, — U.S. —, 106 S.Ct. 1578, 89 L.Ed.2d 817, 229 USPQ 478 (1986), *vacating*, 774 F.2d 1082, 227 USPQ 337 (Fed.Cir.1985), the Supreme Court said:

Petitioner contends that the Federal Circuit ignored Federal Rule of Civil Procedure 52(a) in substituting its view of factual issues for that of the District Court. In particular, petitioner complains of the rejection of the District Court's determination of what the prior art revealed and its findings that the differences identified between respondent's patents and the prior art were obvious.

Petitioner's claims are not insubstantial. As this Court observed in *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 [86

S.Ct. 684, 693-94, 15 L.Ed.2d 545, 556-57], 148 USPQ 459, 467 (1966):

"While the ultimate question of patent validity is one of law, ... the § 103 condition [that is, nonobviousness] ... lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unresolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy."

This description of the obviousness inquiry makes it clear that whether or not the ultimate question of obviousness is a question of fact subject to Rule 52(a), the subsidiary determinations of the District Court, at the least, ought to be subject to the Rule.

The Federal Circuit, however, did not mention Rule 52(a), did not explicitly apply the clearly-erroneous standard to any of the District Court's findings on obviousness and did not explain why, if it was of that view, Rule 52(a) had no applicability to this issue. We therefore lack an adequate explanation of the basis for the Court of Appeals' judgment: most importantly, we lack the benefit of the Federal Circuit's informed opinion on the complex issue of the degree to which the obviousness determination is one of fact. In the absence of an opinion clearly setting forth the views of the Court of Appeals on these matters, we are not prepared to give plenary consideration to petitioner's claim that the decision below cannot be squared with Rule 52(a). Instead, we grant the petition for certiorari, vacate the judgment and remand the

case to the Court of Appeals for further consideration in light of Rule 52(a).
106 S.Ct. at 1579, 89 L.Ed.2d at 821, 229 USPQ at 479.

Opinion on Remand

Reversal of the district court's judgment on the § 103 defense was and is compelled because of legal error, because a first set of clearly correct and unchallenged findings requires that the conclusion of nonobviousness, 35 U.S.C. § 282,¹ must remain untrammelled and because a second set of findings, some nonprobative, some clearly erroneous, is unable to support, intrinsically and in light of the first set, the district court's conclusion of obviousness.

The Background section of our earlier opinion noted error in the second set of findings but did not label it clearly erroneous, Rule 52(a), and did not expressly indicate that the noted error was not the basis for reversal set forth in the Opinion section, thus raising a question respecting the basis for our judgment. That circumstance, regrettable because it has delayed a just end to this litigation, is here rectified.

[1, 2] On review of a judgment based on a conclusion of obviousness under 35 U.S.C. § 103², this court must consider not only whether there is legal error, but also whether the underlying findings are either nonprobative, or clearly erroneous, or both. If, unlike the present case, a district court had not made findings necessary to resolution of the § 103 question, and legal error were present, an appellate court would va-

cate in view of that legal error and remand for the district court to make the missing findings. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 872-75, 228 USPQ 90, 97-99 (Fed.Cir.1985). If unassailable findings were made but could not support the appealed judgment under a proper application of law, an appellate court may vacate or reverse but not make its own findings. *Icicle Seafoods, Inc. v. Worthington*, — U.S. —, —, 106 S.Ct. 1527, 1530, 89 L.Ed.2d 739, 743 (1986).

[3] If findings necessary to support a legal conclusion are clearly erroneous, the conclusion cannot stand. If those facts were such as to permit only one of two possibilities, or if the burden of proving those necessary facts had been on appellee, reversal would not mean the appellate court found facts in defiance of Rule 52(a).³ If, unlike the present case, appellee did not bear the burden below, a remand-requiring fact-finding function might remain.

[4] To obtain reversal without remand, an appellant-patentee must convince this court that the patent challenger failed at trial to carry its statutory burden, 35 U.S.C. § 282, of proving by clear and convincing evidence sufficient facts to support the obviousness conclusion. One way to do that is to show that a proper application of the law to unassailable findings compels reversal. Another is to show that the findings on which the obviousness conclusion rested are clearly erroneous and that nothing of record warrants a further exercise of the fact-finding function or indicates any

1. 35 U.S.C. § 282 reads in pertinent part:

A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim. *The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.* [Emphasis added.]

2. 35 U.S.C. § 103 reads in pertinent part:

Conditions for patentability: non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or de-

scribed as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. That a question is legal does not, of course, free an appellate court to ignore Rule 52(a), to disregard the clearly erroneous standard, to make its own findings *de novo*, or simply to disagree on whim with the district court's legal conclusion.

possibility that the appealed judgment might be sustained by such exercise. Because the record here establishes that appellant has made both showings, reversal is required and there is no basis for remanding the case for new findings by the district court.

In this opinion:

Part I supplies our opinion on the remand inquiry ("the degree to which the obviousness determination is one of fact").

Part II treats Rule 52(a)'s applicability to § 103.

Part III examines the statutory burden of proof.

Part IV describes inventor Caveney's inventions and the effect of his claims.

Part V discusses our earlier opinion and the district court's approach to resolution of the § 103 issue in this case.

Part VI identifies the patent claims on appeal.

Part VII sets forth the district court's erroneous claim interpretations.

Part VIII discusses the findings in general.

Part IX reviews correct findings that compel a conclusion of nonobviousness.

Part X reviews nonprobative and clearly erroneous findings that underlay the appealed judgment.

The Appendix comments on parts of the Petition for Certiorari and Reply.

Part I

The Obvious-Nonobvious Question is One of Law

(a) Nature

A § 103 determination involves fact and law. There may be these facts: what a prior art patent as a whole discloses; what it in fact disclosed to workers in the art;

4. Adherence to the statutes, §§ 103, 282, assures avoidance of a seat-of-the-pants judgment that the invention would "be" obvious at the time of trial to the judge or jury.

5. *E.g., Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 693, 15 L.Ed.2d 545, 556, 148 USPQ

what differences exist between the entire prior art, or a whole prior art structure, and the whole claimed invention; what the differences enabled the claimed subject matter as a whole to achieve; that others for years sought and failed to arrive at the claimed invention; that one of those others copied it; that the invention met on its merits with outstanding commercial success.

With the involved facts determined, the decisionmaker confronts a ghost, i.e., "a person having ordinary skill in the art," not unlike the "reasonable man" and other ghosts in the law. To reach a proper conclusion under § 103, the decisionmaker must step backward in time and into the shoes worn by that "person" when the invention was unknown and just before it was made. In light of *all* the evidence, the decisionmaker must then determine whether the patent challenger has convincingly established, 35 U.S.C. § 282, that the claimed invention as a whole would have been obvious at *that* time to *that* person. 35 U.S.C. § 103.⁴ The answer to that question partakes more of the nature of law than of fact, for it is an ultimate conclusion based on a foundation formed of all the probative facts. If itself a fact, it would be part of its own foundation.

When findings on the foundational facts were not clearly erroneous this court must then determine whether the § 103 answer of the district court is supportable by those findings. As with other statutes, that determination engages this court in an exercise legal in nature.

(b) Precedent

The Supreme Court, the regional Circuit Courts of Appeals, and this court have consistently treated the question as one of law.⁵

459, 467 (1966); *In re McCarthy*, 763 F.2d 411, 412, 226 USPQ 99, 100 (Fed.Cir.1985); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 1344, 220 USPQ 777, 782 (Fed.Cir.) (in banc), *cert. denied*, 469 U.S. 830, 105 S.Ct. 116, 83 L.Ed.2d 60 (1984); *Roberts v. Sears, Roebuck & Co.*, 723 F.2d 1324, 1335, 221 USPQ 504, 514-15 (7th

Graham's statement, "the ultimate question of patent validity is one of law", has been widely interpreted as meaning that one answering the § 103 question is drawing a legal conclusion. And rightly so, because the validity issue in *Graham* turned on that answer and because of what the Court did in *Graham*. It disagreed with conclusions reached below, did not remand, described no finding as "clearly erroneous," and did not mention Rule 52(a).

The Court in *Graham* determined that the facts were (in No. 11) and were not (in Nos. 37 and 43) sufficient to support the lower courts' conclusions on the § 103 question. Similarly, unassailed and unassailable findings here compel our legal conclusion on that question.

(c) Scholars

A survey of writings on "the vexing nature of the distinction between questions of fact and questions of law," *Pullman-Standard v. Swint*, 456 U.S. 273, 288, 102 S.Ct. 1781, 1790, 72 L.Ed.2d 66, 79 (1982), would unduly lengthen this opinion. Scholars who have dealt with the obviousness question unanimously view it as one of law.⁶

(d) Effect

Like all legal conclusions, that under § 103 rests on a factual evidentiary foundation. As said in *Graham*, 383 U.S. at 17, 86 S.Ct. at 693, 15 L.Ed.2d at 556, 148 USPQ at 467, the question is determined "against" the "background" of answers to

Cir.1983) (in banc); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1547, 220 USPQ 193, 197 (Fed.Cir.1983); *Sarkisian v. Winn-Proof Corp.*, 688 F.2d 647, 651 (9th Cir.1982) (in banc), cert. denied, 460 U.S. 1052, 103 S.Ct. 1499, 75 L.Ed.2d 930 (1983); *Julie Research Laboratories, Inc. v. Guildline Instruments, Inc.*, 501 F.2d 1131, 1135-36, 183 USPQ 1, 4-5 (2d Cir.1974); *Flour City Architectural Metals v. Alpana Aluminum Products, Inc.*, 454 F.2d 98, 105-06, 172 USPQ 341, 345-48 (8th Cir.1972); *Kolene Corp. v. Motor City Metal Treating, Inc.*, 440 F.2d 77, 81, 169 USPQ 77, 80 (6th Cir.), cert. denied, 404 U.S. 886, 92 S.Ct. 203, 30 L.Ed.2d 169 (1971); *Swoford v. B & W, Inc.*, 395 F.2d 362, 367, 158 USPQ 72, 76 (5th Cir.), cert. denied, 393 U.S. 935, 89 S.Ct. 296, 21 L.Ed.2d 272 (1968); *In re Sporck*, 301 F.2d 686, 690, 49 CCPA 1039, 1043, 133 USPQ 360, 364 (1962).

factual inquiries,—a description of how legal questions are normally determined.

One effect of considering the § 103 question one of law in this court is to facilitate a consistent application of that statute in the courts and in the Patent and Trademark Office (PTO).

To contribute to consistency in construing § 103, this court has affirmed judgments while noting noncontrolling misstatements of law and cautioning counsel that judgments are appealed, not opinion language.⁷ Controlling misstatements of the legal criteria applicable to § 103 determinations, present in the district court's opinion language in this case, confirm the certain presence of reversible legal error. See 774 F.2d at 1091-1100, 227 USPQ at 342-49.

(e) Decisional Process

The decisional process en route to a § 103 conclusion involves more than answers to the fact inquiries in *Graham*. It also involves: (1) legal determinations; and (2) legal standards for fact-finding.

(1) Legal Determinations

[5] Analysis begins with a key legal question—*what is the invention claimed?* Courts are required to view the claimed invention *as a whole*. 35 U.S.C. § 103. Claim interpretation, in light of the specification, claim language, other claims, and

Both parties and *amicus* agree that the question is one of law, though Dennison goes on to question whether it might be treated as one of fact.

6. See, e.g., 2 D. Chisum, *Patents*, § 5.04[3] (1986); 1 I. Kayton, *Patent Practice*, 5-11 (1985); 2 E.B. Lipscomb, *Walker on Patents*, § 6:4 (1985); 1 P. Rosenberg, *Patent Law Fundamentals*, § 9.02, at 9-12 to 9-12.1 (1985).

7. See, e.g., *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 317, 227 USPQ 766, 771 (Fed.Cir. 1985); *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed.Cir. 1985); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548-50, 220 USPQ 193, 198-99 (Fed. Cir.1983).

prosecution history, is a matter of law⁸ and will normally control the remainder of the decisional process. The district court's claim interpretation in this case constituted compound legal error not subject to Rule 52(a). See Part VII.

Another key preliminary legal inquiry is—what is the prior art? Before answering *Graham's* "content" inquiry, it must be known whether a patent or publication is in the prior art under 35 U.S.C. § 102,—a legal question.⁹ In this case, for example, the '869 tie was not prior art and the district court's primary reliance on it was legal error not subject to Rule 52(a). See Part X.

(2) Legal Standards

Clarity in the law requires universal application of the same legal standards to fact-finding functions performed en route to final § 103 conclusions.

[6–8] Among legal standards for determining scope and content of the prior art, for example, are: a prior patent must be considered in its entirety, i.e., as a whole, including portions that would lead away from the invention in suit, *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed.Cir. 1983), cert. denied, 469 U.S. 851, 105 S.Ct. 172, 83 L.Ed.2d 107 (1984); elements of separate prior patents cannot be combined when there is no suggestion of such combination anywhere in those patents, *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed.Cir.1984); and a court should avoid hindsight, *W.L. Gore & Associates, Inc.*, 721 F.2d at 1553, 220 USPQ at 313.

8. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 932 (Fed.Cir.1984); *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed.Cir.1983), cert. denied, 465 U.S. 1026, 104 S.Ct. 1284, 79 L.Ed.2d 687 (1984).

9. See *In re Hall*, 781 F.2d 897, 899, 228 USPQ 453, 455 (Fed.Cir.1986); *Reading & Bates Construction Co. v. Baker Energy Resources Corp.*, 748 F.2d 645, 649–50, 223 USPQ 1168, 1171–72 (Fed.Cir.1984). Whether something legally within the prior art is "analogous" is a fact

Failure here to employ established legal standards led to the second set of findings nonprobative and clearly erroneous under Rule 52(a). See Part X.

Conclusion on Part I

[9] A determination that an invention would have been obvious when it was made to one of ordinary skill in the art under § 103 is thus a conclusion of law based on fact. The "degree to which" it is one of fact is solely that degree required to erect a foundation of facts capable of supporting the conclusion, those facts having been found by applying correct legal standards and expressed in findings free from clear error and based on clear and convincing evidence.

[10] A determination that an invention would not have been obvious when it was made to one of ordinary skill in the art is also a conclusion of law. At trial's outset, that conclusion is in place. See § 282 and Part III. The factual questions are those raised by the patent challenger in an effort to replace the existing with a contrary conclusion, and those, if any, raised by the patentee in rebuttal of the challenger's case.

Part II

Applicability of Rule 52(a) to the § 103 Issue

Graham, Anderson,¹⁰ Rule 52(a), and the clearly erroneous standard have, before the remand, been consistently applied by this court in affirming judgments that upheld a patent and judgments that struck

question on "content" of the prior art. See *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 313–14, 227 USPQ 766, 768–69 (Fed.Cir. 1985); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed.Cir. 1983).

10. *Anderson v. City of Bessemer City*, 470 U.S. 564, 574, 105 S.Ct. 1504, 1512, 84 L.Ed.2d 518, 528 (1985) ("Where there are two permissible views of the evidence, the fact finder's choice between them cannot be clearly erroneous.").

down a patent.¹¹ In the case at bar, our earlier opinion having noted that reversal was required by legal error and the district court's correct and controlling findings on objective evidence of nonobviousness, explicit reference to Rule 52(a) was not made.¹²

[11] Rule 52(a) is applicable to all findings on the four inquiries listed in *Graham*: scope and content of prior art; differences between prior art and claimed invention; level of skill; and objective evidence (secondary considerations). The last may include: commercial success due to the invention; failure of others; long felt need; movement of the skilled in a different direction; skepticism of experts (see *United States v. Adams*, 383 U.S. 39, 52, 86 S.Ct. 708, 714, 15 L.Ed.2d 572, 580, 148 USPQ 479, 484 (1966)); copying the invention in preference to the prior art (see *Diamond Rubber Co. v. Consolidated Rubber*

Tire Co., 220 U.S. 428, 441, 31 S.Ct. 444, 450, 55 L.Ed. 527, 534 (1911)); and other events proved to have actually happened in the real world (hence the description "objective").¹³

Rule 52(a) is thus fully applicable to all findings on which the § 103 issue is decided, but findings must be made on, and the § 103 issue must be decided in light of, all the probative evidence.

Part III

The Statutory Burden of Proof

[12] It is neither necessary nor appropriate for a court to declare a patent valid.¹⁴ A trial court is required by Congress, 35 U.S.C. § 282, *supra* note 1, to say only whether the patent challenger carried its burden of establishing invalidity in the particular case before the court. 774 F.2d at

11. A partial list of pre-April 1986 cases in which this court has applied Rule 52(a), *Graham*, and *Anderson* would include: *Windsurfing International, Inc. v. AMF Inc.*, 782 F.2d 995, 1000, 228 USPQ 562, 566 (Fed.Cir.), *cert. denied*, — U.S. —, 106 S.Ct. 3275, 91 L.Ed.2d 565 (1986); *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 313, 227 USPQ 766, 768 (Fed.Cir.1985); *Atlas Powder Co. v. E.I. Du Pont De Nemours & Co.*, 750 F.2d 1569, 1573, 224 USPQ 409, 411 (Fed.Cir.1984); *Shelcore, Inc. v. Durham Industries, Inc.*, 745 F.2d 621, 625-26, 223 USPQ 584, 587 (Fed.Cir.1984); *Jervis B. Webb Co. v. Southern Systems, Inc.*, 742 F.2d 1388, 1393, 222 USPQ 943, 946 (Fed.Cir.1984); *Vandenberg v. Dairy Equipment Co.*, 740 F.2d 1560, 1565, 224 USPQ 195, 197 (Fed.Cir.1984); *Radio Steel & Manufacturing Co. v. MTD Products, Inc.*, 731 F.2d 840, 846, 221 USPQ 657, 661-62 (Fed.Cir.), *cert. denied*, 469 U.S. 831, 105 S.Ct. 119, 83 L.Ed.2d 62 (1984); *Seattle Box Co. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 823, 221 USPQ 568, 572 (Fed.Cir.1984); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 1344-45, 220 USPQ 777, 782-83 (Fed.Cir.) (in banc), *cert. denied*, 469 U.S. 830, 105 S.Ct. 116, 83 L.Ed.2d 60 (1984); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed.Cir. 1983); *Carl Schenck, A.G. v. Nortron*, 713 F.2d 782, 785, 218 USPQ 698, 700 (Fed.Cir.1983).

12. See, e.g., *Pullman-Standard v. Swint*, 456 U.S. 273, 287, 102 S.Ct. 1781, 1789, 72 L.Ed.2d 66, 79 (1982) (findings based on erroneous view of the law may be set aside on that basis alone); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1547, 220 USPQ 303, 308 (Fed.Cir.1983),

cert. denied, 469 U.S. 851, 105 S.Ct. 172, 83 L.Ed.2d 107 (1984) ("Where, as here, dispositive legal error occurred in interpretation and application of the patent statute, 35 U.S.C., the parties' arguments relating to the salutary injunction of Fed.Rule Civ.P. 52(a) cannot be controlling on all issues.").

Dennison's brief on appeal correctly said Panduit had to carry its burden on appeal by establishing either legal error or erroneous findings, citing *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1555, 225 USPQ 26, 30 (Fed.Cir.1985).

Dennison's brief also charged the district court with legal error in rejecting Dennison's delay defense. This court affirmed, expressly adding that certain findings were not clearly erroneous. 774 F.2d at 1100, 227 USPQ at 350.

13. Another description: "Circumstantial evidence of the highest probative value." Rich, *Laying the Ghost of the "Invention" Requirement*, in *Nonobviousness—The Ultimate Condition of Patentability* 1:501, 513 (J. Witherspoon ed. 1978). "In appraising an inventor's contribution to the art ... the most reliable test is to look at the situation before and after it appears." *Safety Car Heating & Lighting Co. v. General Electric Co.*, 155 F.2d 937, 939, 69 USPQ 401, 402 (2d Cir.1946) (L. Hand, J.); see also *Graham*, 383 U.S. at 17-18, 86 S.Ct. at 693-94, 15 L.Ed.2d at 556-57, 148 USPQ at 467.

14. *Environmental Designs, Ltd. v. Union Oil Company of California*, 713 F.2d 693, 699 n. 9, 218 USPQ 865, 871 n. 9 (Fed.Cir.1983), *cert. denied*, 464 U.S. 1043, 104 S.Ct. 709, 79 L.Ed.2d 173 (1984).

1096, 227 USPQ at 346. When the burden has not been carried, a court need only so state. When that burden has been carried, the court should declare the patent invalid. The *statute* makes a patent presumptively valid when issued and imposes the burden of establishing invalidity on the challenger.¹⁵ It is the judiciary's duty to follow statutes that requires a trial court lacking a conviction of obviousness to hold that the challenger's burden was not carried.¹⁶ Thereupon, the patent simply remains valid until another challenger carries the § 282 burden.

[13] The presumption mandated by § 282 is applicable to all of the many bases for challenging a patent's validity. When, as here, the sole challenge is an allegation of obviousness, the presumption is that the invention would not have been obvious.

[14, 15] A determination of anticipation under 35 U.S.C. § 102 may be reached by comparing only the claims and a prior art disclosure submitted by the patent challenger. A determination that a patent challenger has not carried its § 282 burden under § 103 may be reached on consideration of only the evidence submitted by the patent challenger. A determination that a patent challenger has carried its burden of establishing obviousness under § 103, however, requires full consideration of any objective evidence of nonobviousness presented in rebuttal. That § 103 issue cannot fairly be decided on only one party's part of the evidence (e.g., patent challenger's prior art), while disregarding the compel-

ling impact of the other party's part (e.g., patentee's objective evidence). Nor is there warrant for singling out § 103 as an area in which courts may disregard the probative force of any part of the evidence.¹⁷

As noted at 774 F.2d at 1099 n. 24, 227 USPQ at 349 n. 24, patent challenger Dennison told the trial court it should disregard the objective evidence of nonobviousness unless it were "undecided" after viewing only the prior art. Dennison mischaracterized this court's opinion in *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed.Cir.1983), *cert. denied*, 469 U.S. 851, 105 S.Ct. 172, 83 L.Ed.2d 107 (1984), as support for that misstatement of law. The district court accepted and applied that erroneous legal analysis. Thus the court decided on only part of the evidence, disregarded the controlling impact of its own unchallenged findings on the objective rebuttal evidence of nonobviousness (evidence that may be, as here, the *most* probative), and shifted the statutory burden of proof.

One sued for patent infringement has over twenty possible defenses. Respecting the "would have been obvious" defense, misperceptions in pre-1982 court opinions¹⁸ have led this court to say the judicial process requires that a court withhold a conclusion of obviousness until it has fully assessed the impact of any objective evidence of nonobviousness. Only then can a

15. As this court has said, the presumption of validity is procedural, not substantive, 774 F.2d at 1097, 227 USPQ at 347, but its burden assignment cannot be transferred. The district court here spoke of *plaintiff's* "errors" (reliance on claim limitations and disregard of general principles of physics/common experience) affecting the "plaintiff's case." But plaintiff Panduit, contrary to the impression it apparently itself created, had no "case" or burden to "prove" validity. As explained in this court's opinions in this case, the district court erred in law in its disregard of the claim limitations and in its reliance on principles of physics/experience.

16. "Judicial power is never exercised for the purpose of giving effect to the will of the judge;

always for the purpose of giving effect to the will of the legislature; or, in other words, to the will of the law." *Osborn v. Bank of the United States*, 22 U.S. (9 Wheat.) 738, 866, 6 L.Ed. 204, 234 (1824) (Marshall, C.J.).

17. For a court to disregard the decision-directing impact of any evidence en route to any conclusion on any issue, would be to dim what Coke called the "gladsome light of jurisprudence." COKE, *First Institute: Epilogue*.

18. See, e.g., *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963, 975-76, 200 USPQ 769, 782 (7th Cir.1979).

court base its judgment, as it must, on *all* probative evidence of record.¹⁹

Consideration of all the evidence may or may not require a conclusion that what may appear obvious *to the court*²⁰ would not have been obvious (because for years it was not) to those of ordinary skill when the invention was made. When a district court has admitted evidence and made findings establishing nonobviousness, disregard of their legal impact is a jurisprudentially improper approach gravely damaging the concepts of fair trial and principled decision-making under the statutes, §§ 103, 282.

This court's many judgments of patent invalidity show that § 282 and a requirement to consider all evidence do not unduly burden patent challengers. Nonobviousness evidence must be weighed along with closeness of the prior art and other evidentiary factors such as nexus with the claimed invention; see for example the discussion in cases in which this court has affirmed a district court's assignment of little weight to objective evidence that was insufficient for varying reasons.²¹

The district court here recognized that the prior art was not close, expressly faulting Panduit for relying on that fact. See *supra* note 15 and 774 F.2d at 1089-90, 227 USPQ at 341. Evaluated under established legal standards, the prior art here was so remote as not to have suggested anything like the claimed inventions to those working for years and at great expense to design a successful cable tie. As discussed in

our earlier opinion, the district court erred in holding to the contrary.

The strong evidence of nonobviousness, and its inescapable refutation of the view that the claimed inventions would have been obvious from the prior art, are what distinguish this case from some others. As the district court said, "This is a case which presents that issue [effect of nonobviousness evidence] as clearly as any I've seen." That evidence, coupled with the remoteness of the prior art, also resolves in this case the "difficulties" seen in *Graham*, 383 U.S. at 18, 86 S.Ct. at 694, 15 L.Ed.2d at 556, 148 USPQ at 467.

[16] According to the uncontroverted evidence, with the prior art before its researchers for years, Dennison conducted a long, expensive research project and produced its "ladder" tie, a tie entirely different from those of the claims in suit. Then, as the court found, Dennison copied Caveney's inventions. When sued, it resuracted that same art for litigation purposes, saying what it copied from Caveney had been obvious to Dennison all along. Even then, knowing from Caveney's patents where it wanted to go at trial, Dennison could only misconstrue the claims and reconstruct the prior art to make it look like what it copied. Dennison's obviousness defense is clearly refuted in this case by the unrefuted record of its own long and frustrating experience and that of others.²²

19. *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573, 1574-75, 222 USPQ 744, 746 (Fed.Cir.1984), *cert. denied*, 471 U.S. 1065, 105 S.Ct. 2138, 85 L.Ed.2d 496 (1985); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39, 218 USPQ 871, 879 (Fed.Cir.1983).

20. At trial, Panduit's counsel quoted the trial court's modest statement in an earlier case: "[I]f I think I might have gotten some clue from this myself, then I know it's obvious to anybody that has anything like ordinary skill." The court responded: "That is the way I tend to feel." In *Stratoflex*, 713 F.2d at 1538, 218 USPQ at 879, this court pointed out that the test under the statute is *not* whether an invention appears obvious "to a judge ... after learning all about the invention."

21. *E.g., Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 315-16, 227 USPQ 766, 770-71

(Fed.Cir.1985); *Cable Electric Products, Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1026-27, 226 USPQ 881, 887-88 (Fed.Cir.1985); *Vandenberg v. Dairy Equipment Co.*, 740 F.2d 1560, 1567, 224 USPQ 195, 199 (Fed.Cir.1984); *Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1151, 219 USPQ 857, 861 (Fed.Cir.1983). Sufficiency and nexus are clear in the present case.

22. In *Graham*, 383 U.S. at 36, 86 S.Ct. at 703, 15 L.Ed.2d at 566, 148 USPQ at 474, the Court noted "in the circumstances of [that] case" that unsuccessful attempts of others before issuance of the uncited Livingstone patent (showing a device virtually identical to Scoggins'), and failure of others to acquire the knowledge of Livingstone stored in the Patent and Trademark Office (PTO), could not tip the scales of patentability. Here the scales are tipped, for Caveney alone disclosed his claimed combination, no

Dennison clearly did not carry its § 282 burden of proving that Caveney's claimed inventions would have been obvious under § 103.

Part IV

Caveney's Inventions—Effect of His Claims

The drawings may be deceptive in seeming to show merely a simple, small, plastic tie.²³ The contrary, however, is established by the undisputed record, including the testimony of Dennison's own engineer witnesses quoted at 774 F.2d 1096, 227 USPQ 346, e.g., "a good tie is a damn difficult thing to design, extremely difficult". Caveney's particular claimed cable ties constitute important contributions achieved not easily but only after years of effort and investment of a million research dollars,—and never achieved in years of research by Dennison, whose tie designs did not remotely resemble the claimed ties until it copied them.

It was undisputed that the ties of Caveney's '538 patent, for example, are applied to groups of parallel cables by an installing machine, reliably and safely holding together the many cables in critical environments such as jet airliners. Caveney's contribution to the safety of the airline riding public is a social benefit.

Though technology has burgeoned, the patent system is not limited to sophisticated technologies and powerful corporations. Nowhere in the statute or the Constitution is the patent system opened only to those who make complex inventions difficult for judges to understand and foreclosed to those who make less mysterious inventions a judge can understand after hearing, as here, the inventor's explanation of his invention and the engineering principles he employed. The constitutional pur-

pose is to encourage disclosure of patentable contributions to "progress in the useful arts", *all* the useful arts, not just the esoteric. The statute requires utility, novelty, and nonobviousness, not complexity.

That cable ties look alike to a casual observer who sees only straps, heads, and locking elements is not determinative. What is determinative and unchallenged on this record is that those elements were available to workers in the art for years before Caveney made his inventions (and remain available today). In viewing the prior art, the district court improperly treated all cable ties as virtually interchangeable (after hearing all about Caveney's inventions and then viewing the ease with which creative defense counsel reconstructed the prior art at his easel). The fact is clear and unchallenged on the record, however, that the crucial structural distinctions set forth in the claim limitations gave the claimed inventions the distinction that led the industry and Dennison to prefer Caveney's structure over anything in the prior art.

Dennison submitted no tests and no testimony challenging the superiority of the claimed ties found by the district court. Nor did it submit evidence that any prior cable tie suggested Caveney's crucial claimed structural limitations that accounted for the success of his inventions.²⁴

The claims are not mere semantic exercises and the present inventions are not insignificant variations or innovations of a commonplace sort. *Graham*, 383 U.S. at 16, 86 S.Ct. at 693, 15 L.Ed.2d at 555, 148 USPQ at 466. The district court found that Caveney achieved and disclosed a "preeminent commercial product" long sought without success by others. Thus Caveney trod well the long and failure-strewn path not only to the Patent Office, *id.* at 19, 86 S.Ct. at 694, 15 L.Ed.2d at 557, 148 USPQ

pertinent prior art patent went uncited, the attempts of Panduit, Dennison and others continued right up to the time Caveney made his inventions, and Dennison's engineers had all the prior art patents before them throughout their years of research effort.

23. Dennison repeatedly emphasizes what is legally innocuous, i.e., that most cable ties employ straps, heads, and locking elements.

24. Nor did Dennison anywhere suggest a reason, other than their great superiority, for its compulsion to copy Caveney's inventions.

at 467, but to a successful and useful product.

The sole effect of the grant to Caveney of the property right, 35 U.S.C. § 261, to exclude others for a limited time from unauthorized use of his inventions is to require that others avoid the claimed structure newly disclosed to the public in the patent documents. Thus Caveney's claims do not remove existing knowledge from the public domain, for there was no such knowledge until Caveney disclosed it in his patents. Nor do those claims restrict access to materials earlier available, for those materials remain available. Contrary to the misstatement by Dennison to the trial court and to the Supreme Court, *see* Appendix, the patent law is and has always been clear, certain, and immutable that, during the short life of the patents in suit, Dennison and all workers in the art remain perfectly free to employ and combine straps, heads, and pawls as those elements were before the Caveney inventions. They need only avoid Caveney's own novel combination and structure as claimed. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed.Cir.1983).²⁵

[17] Under our economic and patent systems, valuation of the *worth* of an inventor's contribution is left to the public, *not* to the judiciary in determining patentability. A judge is nowhere authorized to declare a patent invalid on his or her personal evaluation. *Graham's* statement, "emphasis on nonobviousness is one of inquiry, not quality," 383 U.S. at 17, 86 S.Ct. at 693, 15 L.Ed.2d at 556, 148 USPQ at 467, can be seen as a recognition that judges are not to decide whether *they* think a

particular invention "ought" to be patented. And that is well. Were it otherwise, a letter to the court would do, and trials, Title 35, and the PTO would be unnecessary.²⁶

Though not all inventions achieve public acceptance, many millions in annual sales (\$50 million for Panduit alone), with accompanying taxes and jobs, resulted from Caveney's inventions in the hands of assignee Panduit and admitted copier Dennison. It is undisputed that Caveney's patented ties are novel and useful. The district court found that Caveney's '538 tie leads the industry, and the unchallenged record shows the industry centering on Caveney's inventions, which made owner Panduit No. 1 and copier Dennison No. 2 or 3 in the industry. Caveney's inventions meet the constitutional purpose, for they are classic examples of what the Framers intended when they referred to "Progress of . . . useful Arts." U.S.Const. art. I, § 8, cl. 8.

Part V

This Court's Earlier Opinion—District Court's Approach

In its earlier Opinion section, this court focused on the law governing obviousness and burden of proof, §§ 103, 282, and on the impact of the district court's uncontestedly²⁷ correct findings compelling a conclusion of nonobviousness. We expand, somewhat, that focus here.

The law must be the same for all patents and types of inventions. A level playing ground for the marketplace of ideas is as necessary for technological innovation as it

25. In simple truth, Dennison and others had all the prior art elements available for years, and still do, and always will. Dennison was going its own and different way. When Caveney developed "his way," he added to the sum of new and useful knowledge and showed the way to success. Dennison at that point copied Caveney's way and appropriated to itself a large share of his success.

The law is symmetrical. In considering validity and infringement, Caveney's claims must be viewed as drawn to the combination, not to any one element in the combination.

26. *See supra* notes 16 and 20.

27. Dennison's conjectural argument against commercial success is refuted by its own handsome success with its copied product in which all three representative claims read. Dennison also argued that its failed research efforts were due to manufacturing difficulties, yet it experienced none in copying Caveney's ties. In sum, Dennison's arguments are refuted by the record and by the district court's findings.

is for politics and social policy. If the district court's decisional approach in this case were deemed permissible, it would defeat those goals, for it would destroy every patent, frustrate Congress' effort to effectuate its constitutionally granted power and the Framers' intent to promote progress in the useful arts, and disserve the nation's need to encourage research investment. It would also rend asunder the entire body of § 103 law established in this court's precedents since its creation on October 1, 1982.²⁸

No effective, uniform, reliable patent system could long survive if the law permitted a decisional approach to § 103 determinations like that here employed by the district court and suggested in Dennison's Petition for Certiorari: (1) interpreting claims by redrafting them to one word; (2) implying that that word describes the "differences"; (3) picking from a prior patent an item describable by that word (in effect finding *no* differences); (4) focusing on isolated minutiae in a prior art patent while disregarding its scope, i.e., its entire disclosure, and how its disclosed structure works; (5) making no finding of a suggestion (because there was no evidence thereof) that items found separately in prior patents could or should be shaped positioned, related, and combined as in the claim; (6) considering as prior art what was not; (7) considering not the problem solved by the invention (here a successful cable tie), but speculating on a "problem" of how prior devices might be reconstructed to match the claimed structure, with the benefit of hindsight aided by the inventor's engineering testimony about the inventions in suit;²⁹ (8) determining, years later, that an

invention had been obvious all along from the prior art to one of ordinary skill, in the face of a conclusive finding that it had not, and thus would not have, been obvious from that same art to others, including the many highly skilled engineer-cable designers of Panduit and Dennison who had diligently tried and failed for years, at great expense, to design a successful cable tie; (9) disregarding the impact on the § 103 conclusion of the unchallenged finding that others aware of the prior art, including the infringer's cable tie designers, did not find the claimed inventions obvious but were proceeding in directions entirely different from that of the inventor; (10) disregarding the impact on the obviousness conclusion of the unchallenged conclusive evidence that the infringer, with the prior art before it, after years of research (during which, as its own witness said, it was "tantalizingly close," 774 F.2d at 1096, 227 USPQ at 346), and after patenting many of its entirely different "ladder" type ties, did not find the inventions obvious but deemed it necessary to study Caveney's patents and, as the court unequivocally found, "finally came up with" its copy of the inventions; and (11) holding an invention obvious on the basis of "engineering principles" taught the court by the inventor and a subjective view of "common experience" in the face of its own unchallenged finding that the same "principles/experience" did not make that invention obvious to others who, with the prior art before them, went for years in other directions, which others included the highly skilled engineers at Panduit and Dennison who were fully aware of those same principles and who

28. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 876-77, 228 USPQ 90, 100-01 (Fed.Cir.1985):

The patent system, which is rooted in the United States Constitution (Art. I, § 8, cl. 8), serves a very positive function in our system of competition, i.e., "the encouragement of investment based risk." *Patlex Corp. v. Mosshoff*, 758 F.2d 594, 599, 225 USPQ 243, 247, modified on other grounds, 771 F.2d 480, 226 USPQ 985 (Fed.Cir.1985). By so doing, it "encourages innovation and its fruits: new jobs and new industries, new consumer goods and trade benefits." *Paulik v. Rizkalla*, 760

F.2d 1270, 1276, 226 USPQ 224, 228 (Fed.Cir. 1985) (*in banc*).

29. The district court, as did Dennison's expert, used Caveney's patents and his testimony as an instruction book on how to reconstruct the prior art. See *Arnold & Nation, Proving Section 103 Nonobviousness*, in *Nonobviousness—The Ultimate Condition of Patentability* 4:1, 43-44 (J. Witherspoon ed. 1978) (after reading Abraham Lincoln's Gettysburg Address, one may easily re-create it by selecting words from the dictionary).

had even more relevant experience in the art.³⁰

Virtually all inventions are necessarily combinations of old elements.³¹ The notion, therefore, that combination claims can be declared invalid merely upon finding similar elements in separate prior patents would necessarily destroy virtually all patents and cannot be the law under the statute, § 103.³²

As explained in our earlier opinion and more fully here, *see* Parts III, IX, the district court's finding that Dennison's effort to carry its § 282 burden with clear and convincing evidence left "room for some difference of opinion," *see* Part IX, should have ended the obviousness inquiry, and, infringement having been conceded, should have resulted in judgment for Panduit. In holding otherwise, the court gave but lip

service to § 282 and effectively transferred the burden of proof fixed by the statute.³³

Part VI

The Claims Identified

The parties stipulated that decision on validity of four "representative" claims would be determinative for all. Trial was conducted on only those four claims. Only three of those claims were considered by this court on appeal.³⁴

The district court, in "Supplemental Findings and Conclusions" prepared by Dennison, listed 30 claims as "tried to the court." (See the Appendix for Dennison's presentation to the Supreme Court of claim 26, which was listed but was *not* among the four "representative" claims tried to the court and was *not presented to this court.*)

30. Exercise of the hindsight faculty is facilitated when, as here, a party has its expert witness make sketches reconstructing the prior art by inserting as elements of a claim parts selected from separate patents, asks the witness if he finds each of those inserted elements in that sketch, and submits the sketch as evidence. See *Graham*, 383 U.S. at 36, 86 S.Ct. at 703, 15 L.Ed.2d at 566, 148 USPQ at 474, for the value of objective evidence as a guard against hindsight and the temptation to read the inventor's teachings into the prior art.

Further, to deem permissible the approach and theories of counsel described in our earlier opinion would be to resurrect the obfuscation of the law and the resulting nonuniformity and nonreliability in our national law of patents that Congress sought to alleviate when it created this court. See S.Rep. No. 275, 97th Cong, 1st Sess. 3-6, reprinted in 1982 U.S.Code Cong. & Ad. News 11, 13-16.

31. See *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1566, 220 USPQ 97, 99-100 (Fed.Cir.1983); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540, 218 USPQ 871, 880 (Fed.Cir.1983); *Reiner v. I. Leon Co.*, 285 F.2d 501, 503, 128 USPQ 25, 27 (2d Cir.1960) (L. Hand, J.) ("substantially every invention is for such a 'combination'"); and our earlier opinion, 774 F.2d at 1093, 227 USPQ at 344.

32. We do not imply that Caveney's elements *as claimed* were all old. On the contrary, the district court did not find, as it could not, that the structural elements *as claimed* were shown or suggested anywhere in the prior art. See Part IX.

33. Though our earlier judgment has been vacated, our earlier opinion, familiarity with which is presumed, remains in the books. In our earlier opinion: "filed over three months after the '869 patent application" should be deleted from 774 F.2d at 1088, 227 USPQ at 340; "(filed three months after the '538 patent application)" should be deleted from *id.* at 1089, 227 USPQ at 340; "alone" should be inserted before "had", and "the two references pointed to by the district court as disclosing multiple teeth and" should be deleted, in footnote 18, *id.* at 1093, 227 USPQ at 344. None of those errata affects in any way the reasoning or evidentiary and legal considerations on which our earlier reversal was based, and we find no basis for changing any other portion of our earlier opinion. For a full understanding, our earlier and present opinions should be read together.

34. Panduit's appeal dealt with only claim 24 of the '146 patent, claim 6 of the '538 patent, and claim 10 of the '869 patent. Claims must be individually considered. § 282. The numerous nonrepresentative claims were never presented to or discussed by the trial court or this court. Our judgment is necessarily limited to the three claims considered on appeal and included in the appendix at 774 F.2d 1102-04, 227 USPQ 351-52. (Claim 1 of the '538 patent was added because claim 6 includes all limitations of claim 1.) The parties' stipulation does not substitute for a judgment by this court on the nonrepresentative claims.

*Part VII**Erroneous Claim Interpretations*

[18] In interpreting the claims, the district court committed fundamental legal error when it analyzed each by a single word description of one part of the claimed tie. In patent law, a word ("teeth"; "hinge"; "ledge") means nothing outside the claim and the description in the specification. A disregard of claim limitations, as here, would render claim examination in the PTO meaningless. If, without basis in the record, courts may so rewrite claims, the entire statutory-regulatory structure that governs the drafting, submission, examination, allowance, and enforceability of claims would crumble.

The court's interpretations were doubly contrary to Congress' statutory scheme. First, the claim must particularly point out and distinctly claim the invention. 35 U.S.C. § 112. Second, the "subject matter" that must have been obvious to deny patentability under § 103 is the entirety of the claimed invention, a concept Congress nailed down with the next statutory phrase "as a whole".³⁵

[19] When the prior art is compared with erroneously interpreted claims, findings of differences between the prior art and the claims will necessarily be clearly erroneous. When the sole error lies in claim interpretation, a remand for comparison of the prior art with properly interpreted claims is required. Here, however, the error occurred also in: disregard of clear findings of such legal significance as to have left undisturbed the presumption of

nonobviousness that attached when the patents issued; the application under § 103 of erroneous criteria, *see* Parts V, IX; and reliance on prior art so remote from the properly interpreted claims at issue as to preclude a conclusion of obviousness from that art.

[20] The district court erroneously interpreted claim 24 of the '146 patent as drawn only to multiple "teeth":

I conclude that this [claim limitations] is a description of one element, not three.

The district court erroneously interpreted claim 1 of the '538 patent³⁶ as drawn only to a "hinge":

And that is the essence of '538 patent, the discrete hinge.

The district court erroneously interpreted Claim 10 of the '869 patent as drawn only to a "ledge":

It seems to me, and I so find, that to increase the compressive strength of the cable tie, and specifically the pawl and hinge of the cable tie, you would set the pawl on a ledge.

The district court improperly dismissed the novel structural claim limitations that defined the disposition, positioning, relationship, and operation of the elements in the claims. The ignored claim limitations, however, define crucial structural elements of the invention as a whole, and clearly distinguish (and bind the inventor to the distinction) the whole claimed device from those in prior patents. The prosecution history and the 15 prior patents cited in the PTO establish that no claim was allowed on the mere presence of multiple "teeth",³⁷ or

35. The concept applies as well to infringement. Dennison did not take one of Caveney's words; it took his whole invention.

36. Claim 6, which includes all limitations of claim 1, was the "representative" claim. The court correctly found that Orban showed a pawl in the as molded position, but erred legally in holding claim 6 invalid on that ground. Claim 6 merely adds a limitation to those in claim 1. It would become meaningful only if claim 1 were invalid and the added limitation were relied on for patentability. That one limitation in claim 6 is shown in a prior patent does not render the entire claim invalid. Because claim

1 is not invalid, the presence of all its limitations in claim 6 preserves the latter's validity.

37. That multiple "teeth" was not "the obvious solution" seen by the district court is further confirmed by the unchallenged documentary record. Before and after Caveney made his '146 invention, other workers in the art designed, and disclosed in their patents, cable ties not only with multiple teeth but with *one-toothed* pawls and locking elements. (*See* Rapata 2,936,980; Emery; Schwester 3,186,047; Geisinger 3,339,246; Orban 3,368,247; Eberhardt 3,484,905; Kahapka 3,542,321; Fay 3,766,608; The Japanese Patent.) Moreover, neither patent

of a "hinge", or of a "ledge". The claims, with their present detailed content, resulted from extensive interaction with the Patent Examiner. The district court pointed to nothing in the prior art that suggested any of the *claimed* constructions.

Interpreted in the light of the specification, claim language, prosecution history, and the other claims, the claims at bar are drawn to entire combinations as set forth at 774 F.2d 1102-04, 227 USPQ 531-52. Each of the numerous limitations of each claim was fully considered in the PTO. If Dennison had avoided in its ties the presence of any *one* limitation in a claim, it would have avoided infringement of that claim. It was a clear error of law for the district court to have ignored the limitations clearly set forth in the claims.

Part VIII

The Findings In General

As above indicated, the district court's opinion indicates that it made two sets of findings. It referred to its reality-based first set (clear, fully supported findings on undisputed concrete objective real-world evidence of nonobviousness) not in terms of its operative legal significance, but only in terms of the uncertainty that set created. See Part IX. It decided the issue on its speculation-based second set (nonprobative and clearly erroneous findings on prior art modified by Dennison and disputed by Panduit at trial). See Part X.

We cannot see why the district court's first set of findings did not require a conclusion that Caveney's inventions, which had for years escaped others who sought them, "would not have been obvious" under § 103; nor why Panduit and Dennison wasted research resources for years if Caveney's inventions were obvious to all throughout those years; nor how the prior

art made Caveney's eminently successful inventions obvious to the court in 1984 when it had not made them obvious to skilled engineers (each more skilled than the "ordinary mechanic" referred to in *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 261, 13 L.Ed. 683 (1851)) who had been designing unsuccessful or far less successful cable ties for years when Caveney's inventions were made in the 1960's.

The district court did deal with the six most relevant patents (all but one were cited by the Patent Examiner). Not one of those patents, however, disclosed a tie remotely approaching the structure or success of the claimed ties. Not one disclosed or suggested all the claimed structural limitations. Not one disclosed or suggested Caveney's claimed combinations. Not one disclosed teeth, a hinge, or a ledge *as claimed*. Nor was there evidence or finding that the patents together suggested the claimed combination.

Though the district court said it "found" the combination obvious, the sole support for that "finding" (sic, conclusion) was the presence in separate prior patents of individual elements differing greatly in shape, position, relation, combination, and function. In relying thereon, the court made a fundamental mistake. A holding of invalidity on that basis, as above indicated, is contrary to statute and would defeat the congressional purpose in enacting Title 35.

Indeed, that the elements noted by the court lay about in the prior art available for years to all skilled workers, without, as the court found, suggesting anything like the claimed inventions, is itself evidence of nonobviousness.

The district court did not follow established legal standards (Part I) in finding the content of the prior art. 774 F.2d at

the court cited as showing multiple teeth (Fein r Litwin) involved r suggested their use on a n nreleasable pawl pivotable inside a head having an abutment wall with all of the teeth wedging against that wall.

Had the district court applied the legal standard requiring consideration of the entire prior art as a whole it would have noted the correct

decisi nal thrust of its original statement that " thers were g ing in different directions." Noting the different paths foll wed by those skilled in the art, the court would not have been as likely to have substituted its own view that "with no prior art at all" the claimed inventi n "is [sic, would have been] obvious."

1087-89, 227 USPQ at 339-41. It treated no claim, nor the entire prior art, nor any prior patent "as a whole," but selected bits and pieces from prior patents that might be modified to fit its legally incorrect interpretation of each claim as consisting of one word.³⁸

Instead of making express findings on the structural differences as *claimed*, the district court took the *legal* steps of erroneously interpreting: the '146 claim as a one-word (teeth) "solution" to a "problem" (looseness) not disclosed in the Emery patent; the '869 claim as a one-word (ledge) "solution" to a "problem" (compression) not disclosed in any prior patent; and the '538 claim as a one-word (hinge) "solution" to a "problem" (rigidity) it saw in the *nonprior-art* tie of the '869 patent, a tie that *did not exist* when the invention defined in the '538 claim was made.³⁹

The court specifically found, *see* Part IX, that Caveney's patents disclosed the best ties in the art. It then spoke of "analogous" items, "expected results" from "ordinary steps," "engineering principles," and "common experience." It nowhere reconciled those evaluations with its contrary findings that no one skilled in the art had for years been led to those evaluations by the prior art. The court's treatment emasculated the crucial, critically important

structural limitations that distinguish the claimed inventions from the prior art and that were the key to success of Caveney's inventions.⁴⁰

Part IX

Findings On the Evidence of Nonobviousness

As recognized by this court and by the Supreme Court in the remand, the district court did articulate much of the correct approach. The court also said "I have done everything I am supposed to do." The court's characterization of its action, and its statement that it knew of the presumption of validity, are not findings and not subject to Rule 52(a).

As noted in our earlier opinion, in any event, the court totally *abandoned* the approach it had articulated. With admirable candor, the court expressed the uncertainty created by the conflict between its conclusion and its clear findings on the evidence of nonobviousness:

Now I want to return to where I started and say that I think Mr. Caveney and Mr. Moody and Panduit have designed and perfected an excellent and, indeed, pre-eminent commercial product, and the fact that they have done so contributed greatly to the difficulty of this case. *It is not*

patent issued first. That and presentation at trial of the '869 patent before the '538 patent appear the basis for the district court's mistake. Though legally improper under § 102, the district court's treatment is of interest on a different plane. When the '869 patent issued, Dennison copied it. PX 12. When the '538 patent issued, over *four years later*, Dennison copied that. PX 13. What the district court saw as obvious in the '538 patent was thus clearly shown not to have been obvious to Dennison's engineers over those four years. It simply makes no sense, under the law or the evidence, to say the '538 invention would have been obvious in light of the '869 patent.

38. Unlike *Graham*, all prior art patents dealt with here by the court had been cited against one or more of Caveney's patents by the Examiner in the PTO (except the even more remote Japanese patent). The district court said that if it were right and the Examiner wrong, that may be because the Examiner was confused by the eight applications filed by Panduit over two years as listed in DX 60. In 1985, the large examining corps disposed of 128,721 applications, an average of less than two applications per Examiner per week. Commissioner of Patents and Trademarks, 1985 Annual Report 21, 44. The conjecture on Examiner confusion is unwarranted and unsupported. As indicated at 774 F.2d 1094, 227 USPQ 345, the difference between the court and the Examiner in this case lies in adherence by the latter to the statute and legal standards for evaluating prior patents and claimed inventions.

39. The '869 invention was made after the '538 invention. The applications for those patents were filed within a five-day period, but the '869

40. In resting its conclusion on speculation about how the skilled *would* employ "engineering principles" and "common experience," in the face of irrefragable proof that they did not for years so employ them, the court approached the area foreclosed by the last sentence of § 103, "Patentability shall not be negated by the manner in which the invention was made."

easy to find something obvious in the face of those facts. And I do so with great reluctance and great resistance. And in fact I have been going back and forth on this thing in my mind throughout the trial.

It gives me great comfort to know that I am just the first stop on this trip. Everything I have said here can be analyzed just as well by the Court of Appeals for the Federal Circuit.⁴¹

All the documents are here, the testimony is there for them to read, and if they come to a different conclusion than I, so be it.

This is a case in which the credibility of the witnesses has really played a very small part. It is primarily, it seems to me, a matter of applying your experience to the undisputed facts. It's a matter of interpretation. What do these things teach? *What would they teach* a person of ordinary skill in the art?⁴²

I think there is room for some difference of opinion here based largely upon those secondary considerations that have given me such trouble in this case: failure by others, copying by Dennison, and unquestioned commercial success of the plaintiff. (Emphasis added.)

In addition, the unchallenged record contains these express statements and findings based on undisputed evidence, not clearly erroneous, and further compelling a conclusion of nonobviousness:

- (1) "Obviously, no previous patent showed the combination at issue here. I am not persuaded that this inven-

tion is similar to any one piece of prior art."

- (2) "[O]ther [sic] we were going in different ways and did not arrive at the Caveney structure or anything substantially identical to it."
- (3) "I am satisfied that in plaintiff's patents we see the best of the art at the times in question. The '146 patent [sic, invention] was better than anything else that then existed and the second two patents [sic, inventions], the '869 and '538 patents, were the best at the time."
- (4) "In fact, plaintiff's commercial embodiment of the '538 patent appears to be the leader in the industry."
- (5) "[T]he evidence is simply overwhelming that Dennison copied the '538 patent."
- (6) "And it was only after the issuance of the '538 patent that [Dennison] finally came up with something that looks very much like the '538 patent [sic, tie]."
- (7) "[T]his commercial success, the failure of others, and the copying by Dennison...."

Part X

Nonprobative and Clearly Erroneous Findings

The district court nowhere pointed to anything in the prior art that would have suggested the desirability, and thus the obviousness, of making the distinctive structural elements and combinations Caveney invented and claimed. Nor did the court succeed in the difficult task of cast-

41. Despite the district court's invitation to analyze and come to a different conclusion, we do not here merely accept its first set of findings and reject its second set as clearly erroneous. Findings in the second set that this patent disclosed teeth and that disclosed a hing need not be set aside and may be accepted with ut effect on the present result, for those findings wer legally nonprobative in this case. We hold that the first set so firmly establish non bviousness in this case as to have precluded the c nclusion and judgment based on the second, legally insignificant set. In sum, we hold the district court in its findings "was right the first time."

42. Determination of what a patent teaches is fact finding, not interpretation. *Graham*, 383 U.S. at 17, 86 S.Ct. at 693, 15 L.Ed.2d at 556, 148 USPOQ at 467. A patent either discloses something or it does not. Moreover, speculation on what prior patents "would" teach is unnecessary in this case, wh re the trial c urt unequivocally and correctly *found* that they *had not f r* many years taught r suggested anything lik the claimed inventions to thers who were going in other directions.

ing its mind back into that of a person of ordinary skill in the art who had *no preknowledge* of the crucial structural differences that vitalize Caveney's inventions. That person would not have ignored how the devices disclosed in the prior patents worked, or the rigidity of the pawl in Fein, or the releaseability of the pawls in Litwin and the Japanese patents, or the absence of wedging or an abutment wall or anything but air opposing the teeth in Fein and Litwin, or the absence of anything in Emery to suggest a design the court found so much better than what Emery disclosed.

Because the district court's opinion is an admixture of claim mis-interpretation and fact finding without express reference to "differences", it is necessary to glean those portions that may be treated as implied findings on the differences.⁴³ As above indicated, erroneous claim interpretations led the district court to implied findings that the difference re claim 24 was only multiple teeth in any arrangement, re claim 6 was only a hinge of any type or sort, and re claim 10 was anything that could be called a ledge, but whether a prior patent showed some sort of teeth, or hinge, or ledge, is alone legally insignificant and nonprobative in this case.

Beyond the nonprobative findings, there were these additional "findings", that were clearly erroneous:⁴⁴

The '146 Patent

"The problem presented by Emery was the so called release problem."

No problem at all is presented in the Emery patent. Like all inventors, Emery presented his invention as flawless. Problems with the Emery tie itself were not seen until years after the patent issued, and, as indicated below, those directly concerned (the distributor and manufacturer

of the Emery tie) saw the problem and its solution as entirely distinct from that envisioned by the court and entirely distinct from Caveney's invention.

"[T]he text of Emery makes abundantly clear that Emery's intention was to achieve wedging against the abutment wall ... inside the head...."

That the Emery patent *as a whole* disclosed to those skilled in the art a pawl that extends outside the head in use is necessarily confirmed by the unchallengeable documentary evidence of the Orban patent, the Bourne patent, and the latter's prosecution history, which together refute defense counsel's argument that Figure 2 was a "draftsman's error."⁴⁵

Two years after the Emery patent issued, the *distributor* of the Emery patent tie filed application for the Orban patent. That application and patent described the problem with the Emery tie as *the cutting off of the chisel edge* (one tooth) when, as was common practice, the protruding strap was cut off. That could happen only if the one tooth were outside the head in use as shown in Figure 2. The distributor's "solution", as Dennison's expert testified, was to raise the end wall of the head.

Four years after the Emery patent issued, the *manufacturer* of the Emery tie further confirmed that the patent as a whole disclosed the pawl outside the head in use. In prosecuting the application filed for the Bourne patent, the manufacturer's attorney told the PTO that the problem with the Emery tie (at even that late date) was "bending of the pawl and tongue [strap] in opposite directions." That could happen only if Emery's pawl was outside the head in use as shown in Figure 2. The manufacturer's "solution" was to keep the pawl inside the head at all times.

43. There are no "findings" on content of the prior art or on "differences" in the Supplemental Findings and Conclusions.

44. It would unduly lengthen this opinion to list every clearly erroneous finding. Because findings of the district court were "clearly erroneous" within the meaning of Rule 52, we "set

them aside". *Icicle Seafoods, Inc. v. Worthington*, — U.S. —, —, 106 S.Ct. 1527, 1530, 89 L.Ed.2d 739, 743 (1986).

45. The Orban and Bourne patents are not prior art to Caveney's '146 patent.

Dennison has not mentioned to us the purpose or function of the serrations (teeth) on the curved surface of Emery's pawl. It was able to get its expert witness to say only that one might *force* the Emery pawl *back* into the head if one applied enough load to bend the end wall, but then it might fall through the head.⁴⁶

"And in order to achieve the parallel kind of relationship between the pawl and the abutment wall that will be necessary for effective wedging, it follows that the teeth of the pawl must be in a straight line and equidistant from the surface of the abutment wall."

The district court learned that effective wedging required a parallel-straightline-equidistant relationship only from Cavey's engineering testimony, and from the hindsight reconstruction of the prior art by Dennison's witness, not from the Emery patent or from any other prior art patent. Dennison, and others the court found were going in different directions, did not learn this from anything in the prior art and the court cited no prior art basis for its statement. As a finding on the prior art, the statement is clearly erroneous.

The '538 Patent

"Now the '869 patent had its own problems."

46. In its Petition for Certiorari, Dennison made much of this court's reference, in footnote 5 of our earlier opinion, to the district court's evaluation of the Emery patent disclosure. Had that footnote controlled our earlier decision, we should have said what is said here, pointing out that the district court's evaluation was contrary to the overwhelming weight of the unchallenged documentary and testimonial evidence, that, though there was evidence to support its evaluation, we were left on the entire evidence with the definite and firm conviction that a mistake had been committed, *United States v. United States Gypsum Co.*, 333 U.S. 364, 395, 68 S.Ct. 525, 541, 92 L.Ed. 746, 765 (1948), and that the evaluation [finding] was therefore "clearly erroneous" under Rule 52(a). Dennison's Petition also quoted a colloquy in which Panduit's counsel said it is possible to read Emery as suggesting wedging against the abutment wall, but that a more *reasonable* and *fair* interpretation was one consistent with the drawing. The colloquy

"Now, there are numerous examples in the prior art of hinges and discrete hinges of the kind claimed in the '538 patent. The web in Emery is one example. Litwin has a hinge. Fein, if hinging is a matter of degree, has a hinge, and I refer to Column 2, Line 37 of Fein." "A contemporaneous development that is pertinent is the Bourne patent that had a discrete hinge".

I find nothing in the '538 patent, or at least claim 1 thereof, other than a discrete hinge, that is new over the '869 patent.⁴⁷

This and the court's extended ensuing discussion of the '538 invention in light of '869 "problems" are simply irrelevant. Neither the '869 patent nor the '869 invention *existed* when the '538 invention was made. The '869 invention was the *last* made of all inventions before the court. It is prior art to nothing in the case.

It is clear on the face of Emery, Litwin, Fein, Bourne, and the '146 patent that no hinge remotely "of the kind claimed in the '538 patent" is shown or suggested in the drawings or specifications of any of those patents. On appeal, Dennison made no effort to support this finding. At trial, it abandoned Bourne in view of the PX 77 showing that Bourne disclosed no hinge. Uncontroverted exhibits PX 68, 14D established that Fein disclosed no hinge, despite

is not evidence, and cannot overcome the documentary evidence that those most familiar with the Emery patent tie (and not at the time engaged in this litigation) filed for patents on their own solutions to Emery's "outside the head" pawl long after the Emery patent issued. There are not, therefore, "two permissible views of the evidence" to which this court would apply the injunction of *Anderson v. City of Bessemer City, N.C.*, 470 U.S. 564, 574, 105 S.Ct. 1504, 1512, 84 L.Ed.2d 518, 528 (1985).

47. The '869 invention was not prior art to the invention claimed in the '538 patent, and the '538 invention was not prior art to the invention claimed in the '869 patent. Both inventions were made by the same inventive entity and the applications were copending, having been filed within five days of each other. *In re Land*, 368 F.2d 866, 880, 54 CCPA 806, 825, 151 USPQ 621, 634 (1966). See generally 1 D. Chisum, *Patents*, § 3.08[2] (1986).

its incomprehensible reference to "flexibility pivotable ratchet buckle." It is undisputed that the Emery and '146 hinges were horizontal and in shear. The finding that the prior art disclosed a hinge of the kind claimed is clearly erroneous.

The '869 Patent

"The problem addressed by that ['869] patent was insufficient strength in compression."

"The Japanese patent and the Litwin patent, which are prior art to the '869 patent, also showed structures analogous to the '869 ledge in that they absorbed compressive force, force exerted by the strap as it was tightened about the bundle."

"But I, nonetheless, find the '869 patent to be obvious both on general principles of physics and in light of the Japanese patent and the Litwin patent."

There is not a word in the '869 patent about compression, or about any "problem" of "insufficient strength," in compression or otherwise. Nor is there a word about absorbing compressive force. The court was here repeating back to Caveney his engineering testimony on the advantages achieved by the structural distinctions in the claim. The court then turned to its legally improper and impossible "general principles" standard of patentability. *See* 774 F.2d at 1097-98, 227 USPQ at 347-48.

The Japanese and Litwin patents disclosed structures entirely distinct from and nonsuggestive of the ledge and pawl structure set forth in claim 10. Both disclosed releasable pawls. Neither disclosed a ledge and pawl inside a frame. Whether those patents showed structures "analogous" because something in them "absorbed compressive force" is irrelevant, claim 10 being drawn to an entirely different *structure*, not to "absorbing compressive force." If the court's discussion be considered an implied finding that the content of the Japanese and Litwin patents constitute disclosures capable of rendering obvious the invention set forth in claim 10, such a finding would be clearly erroneous.

CONCLUSION

The portion of the district court's judgment rejecting Dennison's defense under 35 U.S.C. § 102(g) is *affirmed*. The portion of the district court's judgment upholding Dennison's defense under 35 U.S.C. § 103 is *reversed*. The case is *remanded* for further proceedings consistent with this opinion.

AFFIRMED IN PART, REVERSED IN PART, AND REMANDED

APPENDIX

Dennison's Petition for Certiorari and Reply ignored our earlier opinion's explanation of legal error and need to consider all evidence, presented material for the first time, and repeated misstatements of law Dennison employed in the trial court but avoided before this court. This Appendix sets forth the more egregious of the many obfuscating assertions in the Petition and Reply.

"Figure 2, on the other hand, appears to show a pawl which is so long that it cannot fit inside the head." (pp. 4, 5).

That assertion was not made at the trial or on appeal. It appears for the *first time* in the petition.

"And perhaps of greatest significance is the fact that the trial court had before it—although not mentioned in its oral opinion—drawings of the commercial Emery ties and samples of the commercial ties." (p. 7).

"Significance" and Rule 52(a) cannot be applied to what was "not mentioned." *No prior art* "commercial Emery ties" were in evidence. DX 24 (unopened bag of ties surfacing 14 years after Caveney's invention) was handed up at trial and on appeal, but never referred to as prior art. Panduit's brief said, without refutation, that defense counsel *knew* those ties were not prior art.

"The deposition of the U.S. distributor of these ties confirms that the trial court's interpretation of the Emery patent was correct, but the Federal Circuit opinion

APPENDIX—Continued

simply fails to acknowledge existence of this other evidence.” (p. 7).

The deposition was handed to the trial court three minutes before it rendered its oral opinion. It was *not acknowledged* and *not included in the record* by the trial court. The pages of the deposition in the appendix on appeal do not contain the asserted confirmation.

“no invention....” (p. 7); “an invention....” (p. 16); “was invention....” (p. 16); “an invention.” (p. 18); “an invention.” (p. 20).

See 774 F.2d at 1098, 227 USPQ at 348; *Graham*, 383 U.S. at 14, 86 S.Ct. at 692, 15 L.Ed.2d at 554, 148 USPQ at 465 (“Congress has emphasized ‘nonobviousness’ as the operative test of the section, rather than the less definite ‘invention’ language of *Hotchkiss*....”); Rich, *supra* note 13, at 1:508.

“The prior art, as best represented by the Orban patent....” (p. 7).

The district court applied Orban *only* to the dependent portion of claim 6 and *expressly* refused to find Orban relevant to anything else.

“The reference in the ’538 drawing to a noncollapsible hinge is incorrect.... Panduit argued in its brief before the Federal Circuit that a ‘different embodiment’ of its cable ties had the collapsible hinge and the Federal Circuit not only accepted that erroneous statement but then compounded its error by publicly indicting Dennison’s counsel for correcting Panduit.” (p. 14, n. 3).

The ’538 patent repeatedly and only describes the hinge in compression as “rigid non-collapsible” and the reference in the drawing is therefore *not* “incorrect”. Dennison’s counsel recognized before the trial court that a collapsible hinge was necessarily a “different embodiment” rejected as “new matter” by the Examiner and Board of Appeals. Dennison is not employing a collapsible hinge and arguing noninfringement.

“‘The Obviousness of the Differences’” (p. 17); “‘nonobvious differences.’” (p.

19); “‘The Obviousness of the Differences’” (p. 8 of Reply).

In *Berkemer v. McCarty*, 468 U.S. 420, 437, 104 S.Ct. 3138, 3149, 82 L.Ed.2d 317, 333 (1984), the Court refused to “accord talismanic power” to a phrase in a prior opinion. To take literally phrases about obviousness of differences themselves would be to place the Court in conflict with the clear language of the statute, § 103, which requires that, *after* the differences are found, the subject matter of the claimed invention be judged *as a whole*. See *Aro Mfg. Co., Inc. v. Convertible Top Replacement Co., Inc.*, 365 U.S. 336, 339, 81 S.Ct. 599, 600, 5 L.Ed.2d 592, 595, 128 USPQ 354, 356–57 (1961) (“the claims made in the patent are the sole measure of the grant.”). The differences may render the invention as a whole, as here, so distinct as to produce results of which prior devices are incapable. See *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 1546, 221 USPQ 1, 7 (Fed.Cir.1984); *Jones v. Hardy*, 727 F.2d 1524, 1528, 220 USPQ 1021, 1024 (Fed.Cir.1984); *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 220 USPQ 97 (Fed.Cir.1983).

“The Federal Circuit’s opinion states that the trial court treated the ’869 patent as prior art when dealing with the ’538 patent. This was another unfortunate departure from the record by the Federal Circuit since explicit contrary statements were made by the trial court.... The trial court’s practice does not warrant, we believe, the Federal Circuit’s refusal to even acknowledge that supplemental fact findings were made, let alone to suggest that the trial court made misstatements of fact when adopting these supplemental findings. We submit that the Federal Circuit must treat the trial court’s supplemental findings as part of the record.” (p. 17, n. 5).

Aware of the trial court’s legally improper concentration on the ’869 patent as though it were prior art, Dennison persuaded the court, a month after its opinion, to list other prior art as “considered” (the list is not a “finding”), carefully excising from the list the ’869 patent. This court’s

APPENDIX—Continued

earlier opinion *quoted* the trial court's statement, 774 F.2d at 1089, 227 USPQ at 341, that it found "nothing in the '538 patent ... that is new over the '869 patent." The trial court also said, "the discrete hinge in the '538 patent is not a patentable difference over the '869 patent." The trial court's 14-paragraph discussion leading to the first foregoing quote is entirely based on its view that "the '869 patent had its own problems," that the principal "problem" was insufficient flexibility, and that the cure, "the way the '538 patent does it," was "the so-called discrete hinge." The trial court made *no* "explicit contrary statements" and nowhere said it did *not* rely on the '869 patent as prior art. There was thus no "unfortunate departure from the record," no reason to "acknowledge that supplemental fact findings were made," no refusal to "treat the trial court's supplemental findings as part of the record," and no suggestion "that the trial court made misstatements of fact when adopting these supplemental findings."

"It is apparent that Panduit, Eberhardt, and Bourne all responded at about the same time to the new specifications facing the industry." (p. 20).

"New specifications" were not listed as prior art under § 282 and were not mentioned by the district court. The "Mil Specs" in the record do not require a pawl of any design, and Dennison's entirely different "ladder" ties fully meet those specifications. Dennison's trial brief said Eberhardt sought to avoid pivoting a pawl at its base. Its brief on appeal said Eberhardt's pawl was "pivotally mounted." The trial court said, "It sounds like they [Eberhardt] are claiming the exact opposite kind of virtue from what is claimed in plaintiff's patent." Dennison copied the *claimed* inventions in preference to copying the entirely different "contemporaneous developments" it now praises.

"Dennison faces an injunction and potentially heavy damages if it is ultimately excluded from using such elementary features in its cable ties." (p. 21).

Dennison should know that there is *no possibility in law* for such exclusion. See 774 F.2d at 1093, 227 USPQ 344, and Part VI, *supra*. Dennison knows it is and always will be free to copy the cable ties in the expired prior art patents to Emery, Fein, Litwin, Orban, Eberhart, Bourne, and the Japanese patent, all of which it *praises* as having disclosed all such "elementary features." All Dennison faces is damages for having *copied* Caveney's *claimed* inventions and an injunction against further use of *those* inventions. Even so, Dennison will be free to resume its copying of Caveney's inventions in 1987, 1989, and 1993, respectively.

"comparison of the Emery cable tie with claim 26 of the '146 patent, this claim being one of the 28 claims asserted by Panduit:" (p. 2 of Reply.).

Claim 26 was not discussed at trial and was *never presented to this court*.

"Dennison's statements to this Court and to the Federal Circuit were 100% accurate ... more significantly, this petition should be reviewed because of the critical errors made by the Federal Circuit, and not on the basis of such secondary disputes." (p. 10 of Reply).

Dennison's statements were not accurate. See this Appendix and 774 F.2d at 1101-02, 227 USPQ at 350-51. Obfuscation is not merely a "secondary dispute."



(CCPA 1970), as precedent to the contrary since that case concerned a correctly filed reissue application and the subsequent addition of broadened claims. The court simply held that the language "applied for" in the fourth paragraph of 35 U.S.C. § 251 refers to filing of an application for reissue and did not prohibit the addition of broadened claims to the correctly filed application.

The decision of the PTO should be affirmed.



In re John A. DONOHUE.

Serial No. 263900.

Appeal No. 85-868.

United States Court of Appeals,
Federal Circuit.

July 3, 1985.

Applicant appealed from a decision of the United States Patent and Trade Mark Office Board of Appeals which sustained final rejection of certain claims of an invention relating to acid compounds which were suitable for producing polymers used to form shaped objects such as film, fibers or molded parts. The Court of Appeals, Jack R. Miller, Senior Circuit Judge, held that the claims were properly rejected as anticipated.

Affirmed.

1. Patents ⇨16(2, 3)

Prior art under 35 U.S.C.A. § 102(b) must sufficiently describe the claimed invention to have placed the public in possession of it; such possession is effected if one of ordinary skill in the art could have combined publication's description of the inven-

* Judge Miller assumed senior status effective

tion with his own knowledge to make the claimed invention.

2. Patents ⇨69

Even if claimed invention is disclosed in a printed publication, that disclosure will not suffice as prior art if it was not enabling; however, it is not necessary that an invention disclosed in a publication actually be made in order to satisfy the enablement requirement. 35 U.S.C.A. § 102(b).

3. Courts ⇨96(1)

Court of Appeals is bound by decisions of the Court of Customs and Patent Appeals.

4. Patents ⇨72(1)

Anticipation rejection requires a showing that each limitation of a claim must be found in a single reference, practice, or device.

5. Patents ⇨72(1)

Claims of an invention relating to acid compounds which were suitable for producing polymers used to form shaped objects, such as film, fibers or molded parts, were properly rejected under 35 U.S.C.A. § 102(b) as anticipated.

William Magidson, of Chicago, Ill., argued for appellant.

Harris A. Pitlick, Associate Solicitor, U.S. Patent & Trademark Office, of Arlington, Va., argued for appellee. With him on the brief were Joseph F. Nakamura, Solicitor and John W. Dewhirst, Associate Solicitor, Washington, D.C.

Before MARKEY, Chief Judge, BALDWIN, Circuit Judge, and MILLER,* Senior Circuit Judge.

JACK R. MILLER, Senior Circuit Judge.

This is an appeal from the decision of the U.S. Patent and Trademark Office ("PTO") Board of Appeals ("board") sustaining the

June 6, 1985.

final rejection of appellant's claims ¹ 1, 2, 5, 6, 7, 25, and 28. We affirm.

BACKGROUND

The subject matter of this appeal was previously before this court's predecessor in *In re Donohue*, 632 F.2d 123, 207 USPQ 196 (CCPA 1980) ("*Donohue I*").² There is no need to discuss the details of that opinion; however, a summary of the pertinent facts is appropriate for a full understanding of the issues before us.

The present invention relates to 2,2',6,6'-tetramethylbiphenyl-4,4'-dicarboxylic acid compounds which are suitable for producing polymers used to form shaped objects, such as film, fibers, or molded parts. Claim 1, which is the sole independent claim on appeal, is illustrative:

2,2',6,6'-tetramethylbiphenyl-4,4'-dicarboxylic acid compound comprising said acid, an acyl halide derivative thereof, or a simple ester thereof.

The PTO has rejected all the appealed claims under 35 U.S.C. § 102(b) "as anticipated by Nomura [et al.], optionally in view of Lincoln and Walker [et al.]."

Nomura et al. ("*Nomura*")³ discloses twelve 2,2',6,6'-tetramethylbiphenyls ("*TMBP*") which are 4,4'-disubstituted with NH₂, NMe₂, OH, OMe, Cl, Br, I, CO₂H, CO₂Me, CN, NO₂, or H substituents. Methods of preparing all these compounds, except those disubstituted with CO₂H or CO₂Me, are set forth in Nomura. Nomura's disclosure of how to make 4,4'-dinitrile (or dicyano) TMBP is particularly signifi-

cant, because Lincoln⁴ and Wagner et al. ("*Wagner*")⁵ teach, generally, the preparation of carboxylic acids from nitriles by hydrolysis.

In *Donohue I*, a majority of the Court of Customs and Patent Appeals ("CCPA") affirmed the PTO's rejection of appealed claims 1, 5, 6, and 7⁶ under 35 U.S.C. § 102(b). *Id.* at 127, 207 USPQ at 200. The basis for the rejection was, as it is here, Nomura with reference to Lincoln and Wagner. *Id.* at 126, 207 USPQ at 199.

A minority of the CCPA voted to reverse the PTO's decision, because they concluded it was uncertain from the text of Nomura that the dicarboxylic acid TMBP and dimethyl ester TMBP were ever prepared. *Id.* at 129, 207 USPQ at 201. Accordingly, Nomura's disclosure was, in the minority's view, no more than a mere naming of the claimed compounds which is insufficient to constitute an enabling disclosure. *Id.* at 129, 207 USPQ at 201.

After *Donohue I*, the presently-appealed application was filed. During prosecution before the PTO, appellant submitted an affidavit under 37 C.F.R. § 1.132 executed by Dr. Ellis K. Fields ("*Fields affidavit*"). In this affidavit, Dr. Fields states that he wrote to Dr. Yoshito Takeuchi, one of the authors of Nomura, to ask whether the disclosed dicarboxylic acid TMBP or dimethyl ester TMBP compounds were ever synthesized, as indicated in Nomura. Dr. Takeuchi responded by stating that these compounds were not synthesized, and Dr.

1. In application Serial No. 263,900, filed May 15, 1981, for Tetramethylbiphenylcarboxylic Acids and Derivatives Thereof, which is a division of Serial No. 60,909, filed July 26, 1979, and a continuation of Serial No. 622,649, filed October 15, 1975, which is a continuation-in-part of Serial No. 517,506, filed October 24, 1974.

2. *Donohue I* involved application No. 622,649. See note 1, *supra*.

3. Yujiro Nomura and Yoshito Takeuchi, "Substituent Effects in Aromatic Proton Nuclear Magnetic Resonance Spectra. Part VI. [²H₆] Benzene-induced Solvent Shifts in 4,4'-Disubstituted 2,2',6,6'-Tetramethylbiphenyls and Related Compounds," *J. Chem. Soc'y (B)*, 956-60 (1970).

4. U.S. Patent No. 3,876,691, issued April 8, 1975, on application No. 351,696, filed April 16, 1973, for a "Process for the Hydrolysis of Nitriles."

5. Wagner et al., *Synthetic Organic Chemistry* 412-15 (John Wiley & Sons, N.Y., N.Y.) (1965).

6. Claim 1 in *Donohue I* differs from claim 1 of the present appeal only in that the latter includes the limitation "comprising said acid, an acyl halide derivative thereof, or a simple ester thereof." Claims 5, 6, and 7 of *Donohue I* specify the same dependent features as in the presently-appealed claims of the same number.

Fields submitted his affidavit to that effect.

Despite the Fields affidavit, the examiner finally rejected the claims, and an appeal to the board was filed. The board affirmed the rejection of the claims on the grounds stated *supra*, holding that it was bound by *Donohue I*. As to the Fields affidavit, the board held that whether the authors of Nomura actually prepared the claimed compounds is not "material or relevant"; rather, the key factor in evaluating the adequacy of a reference's disclosure was deemed to be whether that disclosure would have been enabling, and the board determined that the CCPA had decided that question with respect to Nomura.

ANALYSIS

Appellant has made a record different from that in *Donohue I* by submitting the Fields affidavit. This new record presents a new issue of patentability with respect to whether the previously-sustained anticipation rejection can still be maintained. In view of this new issue, the PTO properly declined to make a formal *res judicata* rejection and addressed the question of whether the Fields affidavit overcomes the rejection of the claims based on Nomura. See *In re Ackermann*, 444 F.2d 1172, 1176, 170 USPQ 340, 343 (CCPA 1971); *In re Russell*, 439 F.2d 1228, 1230, 169 USPQ 426, 428 (CCPA 1971); *In re Herr*, 377 F.2d 610, 611, 153 USPQ 548, 549 (CCPA 1967).

Appellant argues that the Fields affidavit, which states that the authors of Nomura did not make the disclosed dicarboxylic acid TMBP and dimethyl ester TMBP compounds, overcomes the PTO's rejection. It is urged that *Donohue I* and *In re Samour*, 571 F.2d 559, 197 USPQ 1 (CCPA 1978), require, *inter alia*, that a 35 U.S.C. § 102(b) rejection based on a primary reference disclosing a claimed compound in conjunction with one or more references which teach how to make that compound, should be sustained only if the claimed compound was actually made. We disagree.

[1,2] It is well settled that prior art under 35 U.S.C. § 102(v) must sufficiently describe the claimed invention to have placed the public in possession of it.⁷ *In re Sasse*, 629 F.2d 675, 681, 207 USPQ 107, 111 (CCPA 1980); *In re Samour*, 571 F.2d at 562, 197 USPQ at 4; see also *Reading & Bates Construction Co. v. Baker Energy Resources Corp.*, 748 F.2d 645, 651-52, 223 USPQ 1168, 1173 (Fed.Cir.1984). Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his own knowledge to make the claimed invention. See *In re LeGrice*, 301 F.2d at 939, 133 USPQ at 373-74. Accordingly, even if the claimed invention is disclosed in a printed publication, that disclosure will not suffice as prior art if it was not enabling. *In re Borst*, 345 F.2d 851, 855, 145 USPQ 554, 557 (CCPA 1965), *cert. denied*, 382 U.S. 973, 86 S.Ct. 537, 15 L.Ed.2d 465 (1966). It is not, however, necessary that an invention disclosed in a publication shall have actually been made in order to satisfy the enablement requirement.

In re Wiggins, 488 F.2d 538, 179 USPQ 421 (CCPA 1973) and *In re Sheppard*, 339 F.2d 238, 144 USPQ 42 (CCPA 1964), do not support a contrary view. In those cases, the references were deemed insufficient, because they stated that attempts to prepare the claimed compounds were unsuccessful. Such failures by those skilled in the art (having possession of the information disclosed by the publication) are strong evidence that the disclosure of the publication was nonenabling. By contrast, the fact that the author of a publication did not attempt to make his disclosed invention does not indicate one way or the other whether the publication would have been enabling.

Although *In re Samour* and *Donohue I* mention that the claimed invention in each case was apparently produced in conjunction with the anticipatory reference, this is a far cry from proclaiming that such pro-

7. This rule is based on the "described in a printed publication" language in 35 U.S.C. § 102(b).

See *In re LeGrice*, 301 F.2d 929, 936, 133 USPQ 365, 371 (CCPA 1962).

duction is required to meet the enablement requirement. *In re Samour*, in fact, states:

[W]hether or not [the claimed invention] has been made previously is not essential to a determination that a method of preparing it would have been known by, or would have been obvious to, one of ordinary skill in the art.

571 F.2d at 563 n. 6, 197 USPQ at 4 n. 6. Therefore, the statements in *In re Samour* and *Donohue I* that the claimed invention was made previously serve to point out the absence of any strong evidence of nonenablement as in *Wiggins* and *Sheppard*. See *In re Donohue*, 632 F.2d at 126 n. 6, 207 USPQ at 199 n. 6.

[3] At oral argument, appellant also challenged the correctness of the CCPA's holding in *In re Samour* and *Donohue I* that several references can be used together to support an anticipation rejection. However, we are bound by the CCPA's decision in those cases. *South Corp. v. United States*, 690 F.2d 1368, 1370-71, 215 USPQ 657, 658 (Fed.Cir.1982) (in banc). At the same time, we have no difficulty with the rejections made in *In re Samour* and *Donohue I*.

[4, 5] It is elementary that an anticipation rejection requires a showing that each limitation of a claim must be found in a single reference, practice, or device. *E.g.*, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed.Cir. 1983), *cert. denied*, — U.S. —, 104 S.Ct. 1284, 79 L.Ed.2d 687 (1984). The anticipation rejection used here, as in *In re Samour* and *Donohue I*, is not inconsistent with this rule. See *In re Marshall*, 578

F.2d 301, 304, 198 USPQ 344, 346 (CCPA 1978). The additional references utilized in this case (viz., Lincoln and Wagner) are not relied upon for suggestion or motivation to combine teachings to meet the claim limitations, as in rejections under 35 U.S.C. § 103. *In re Samour*, 571 F.2d at 563, 197 USPQ at 4-5. Such reliance would be pointless, because Nomura alone discloses every element claimed. The purpose of citing Lincoln and Wagner is, instead, to show that the claimed subject matter, as disclosed in Nomura, was in the public's possession. *Id.* Therefore, the anticipation rejection based on Nomura, Lincoln, and Wagner is proper.⁸

Appellant also argues that the references fail to teach the solubility characteristics and melting point range set forth in dependent claims 25 and 28, respectively.⁹ However, where, as here, the dicarboxylic acid TMBP and dimethyl ester TMBP of Nomura are identical to the claimed invention, the properties of Nomura's compounds are inherently the same as those of the claimed invention in the absence of proof to the contrary. See *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977).

In view of the foregoing, the board's decision is affirmed.

AFFIRMED



8. Compare *Studiengesellschaft Kohle, M.B.H. v. Dart Industries, Inc.*, 726 F.2d 724, 220 USPQ 841 (Fed.Cir.1984) (recognized exception occasionally permitting use of additional references in anticipation rejections but holding exception did not apply).

9. Claims 25 and 28 read as follows:

25. The acid of Claim 2, said acid being soluble in ether and N-methyl-2-pyrrolidone.

28. The dimethyl ester of Claim 7, having a melting point of 128-129°C.

ant as well as the public interest, the Commission abuses its discretion by declining to release the bond merely because of sales by a respondent of goods known to the complainant at the time of the agreement.

Biocraft also makes other arguments which we need not address.

CONCLUSION

The Commission's denials of Biocraft's requests for return or cancellation of bonds posted pursuant to the Temporary Cease and Desist Order issued January 10, 1990, were an abuse of discretion. Its order is therefore

REVERSED.



In re Mark A. VAECK, Wipa
Chungjatupornchai and
Lee McIntosh.

No. 91-1120.

United States Court of Appeals,
Federal Circuit.

Oct. 21, 1991.

Inventor sought patent for claimed invention directed to use of genetic engineering techniques for production of insecticidal proteins. The United States Patent and Trademark Office Board of Patent Appeals and Interferences affirmed an examiner's rejection of certain claims, and appeal was taken. The Court of Appeals, Rich, Circuit Judge, held that: (1) patent application was improperly rejected on ground of prima facie obviousness, and (2) patent application was properly rejected to extent that claims were too general to enable person skilled in art to make and use claimed invention without undue experimentation.

Affirmed in part, reversed in part.

Mayer, Circuit Judge, dissented and filed opinion.

1. Patents ⇐314(5)

Obviousness of invention for which patent is sought is legal question which court independently reviews, though based upon Patent and Trademark Office's underlying factual findings, which court reviews under clearly erroneous standard. 35 U.S.C.A. § 103.

2. Patents ⇐16(2)

In reviewing rejection of invention for patent as obvious in view of combination of prior art references, court considers whether prior art would have suggested to those of ordinary skill in art that they should make claimed composition or device, or carry out claimed process, and whether prior art would also have revealed that in so making or carrying out, those of ordinary skill would have reasonable expectation of success; both suggestion and reasonable expectation of success must be found in prior art, not in applicant's disclosure. 35 U.S.C.A. § 103.

3. Patents ⇐16.25

Patent application for genetic engineering techniques for production of insecticidal proteins was improperly rejected on ground of prima facie obviousness; prior art did not disclose or suggest expression in cyanobacteria of chimeric gene encoding insecticidally active protein, or convey to those of ordinary skill reasonable expectation of success in doing so. 35 U.S.C.A. § 103.

4. Patents ⇐99

To be patentable, specification of patent must enable any person skilled in art to which it pertains to make and use claimed invention without undue experimentation. 35 U.S.C.A. § 112.

5. Patents ⇐99

Patent application for using genetic engineering techniques to produce insecticidal proteins was properly rejected to extent that claims were too general to enable person skilled in art to make and use claimed invention without undue experimentation;

claim referred to use of cyanobacteria in general as host organism, despite fact that cyanobacteria were diverse and relatively poorly studied group of organisms, comprising some 150 different genera, with successful use of any one type in manner called for in invention being unpredictable. 35 U.S.C.A. § 112.

6. Patents ⇐99

Although patent applicants are not required to disclose every species encompassed by their claims, even in unpredictable art, in order to satisfy enablement requirement for patentability, there must be sufficient disclosure, either through illustrative examples or terminology, to teach those of ordinary skill how to make and how to use invention as broadly as it is claimed. 35 U.S.C.A. § 112.

Ian C. McLeod, Ian C. McLeod, P.C., Okemos, Mich., argued for appellant.

Teddy S. Gron, Associate Sol., Office of the Sol., of Arlington, Va., argued for appellee. With him on the brief were Fred E. McKelvey, Sol. and Richard E. Schafer, Associate Sol.

Before RICH, ARCHER, and MAYER, Circuit Judges.

RICH, Circuit Judge.

This appeal is from the September 12, 1990 decision of the Patent and Trademark Office (PTO) Board of Patent Appeals and Interferences (Board), affirming the examiner's rejection of claims 1-48 and 50-52 of application Serial No. 07/021,405, filed March 4, 1987, titled "Hybrid Genes Incorporating a DNA Fragment Containing a Gene Coding for an Insecticidal Protein, Plasmids, Transformed Cyanobacteria Expressing Such Protein and Method for Use as a Biocontrol Agent" as unpatentable under 35 U.S.C. § 103, as well as the rejection

of claims 1-48 and 50-51 under 35 U.S.C. § 112, first paragraph, for lack of enablement. We reverse the § 103 rejection. The § 112 rejection is affirmed in part and reversed in part.

BACKGROUND

A. The Invention

The claimed invention is directed to the use of genetic engineering techniques¹ for production of proteins that are toxic to insects such as larvae of mosquitos and black flies. These swamp-dwelling pests are the source of numerous human health problems, including malaria. It is known that certain species of the naturally-occurring *Bacillus* genus of bacteria produce proteins ("endotoxins") that are toxic to these insects. Prior art methods of combatting the insects involved spreading or spraying crystalline spores of the insecticidal *Bacillus* proteins over swamps. The spores were environmentally unstable, however, and would often sink to the bottom of a swamp before being consumed, thus rendering this method prohibitively expensive. Hence the need for a lower-cost method of producing the insecticidal *Bacillus* proteins in high volume, with application in a more stable vehicle.

As described by appellants, the claimed subject matter meets this need by providing for the production of the insecticidal *Bacillus* proteins within host cyanobacteria. Although both cyanobacteria and bacteria are members of the procaryote² kingdom, the cyanobacteria (which in the past have been referred to as "blue-green algae") are unique among procaryotes in that the cyanobacteria are capable of oxygenic photosynthesis. The cyanobacteria grow on top of swamps where they are consumed by mosquitos and black flies. Thus, when *Bacillus* proteins are produced with-

1. Basic vocabulary and techniques for gene cloning and expression have been described in *In re O'Farrell*, 853 F.2d 894, 895-99, 7 U.S.P.Q.2d 1673, 1674-77 (Fed.Cir.1988), and are not repeated here.

2. All living cells can be classified into one of two broad groups, procaryotes and eucaryotes.

The procaryotes comprise organisms formed of cells that do not have a distinct nucleus; their DNA floats throughout the cellular cytoplasm. In contrast, the cells of eucaryotic organisms such as man, other animals, plants, protozoa, algae and yeast have a distinct nucleus wherein their DNA resides.

in transformed³ cyanobacterial hosts according to the claimed invention, the presence of the insecticide in the food of the targeted insects advantageously guarantees direct uptake by the insects.

More particularly, the subject matter of the application on appeal includes a chimeric (i.e., hybrid) gene comprising (1) a gene derived from a bacterium of the *Bacillus* genus whose product is an insecticidal protein, united with (2) a DNA promoter effective for expressing⁴ the *Bacillus* gene in a host cyanobacterium, so as to produce the desired insecticidal protein.

The claims on appeal are 1-48 and 50-52, all claims remaining in the application. Claim 1 reads:

1. A chimeric gene capable of being expressed in Cyanobacteria cells comprising:

(a) a DNA fragment comprising a promoter region which is effective for expression of a DNA fragment in a Cyanobacterium; and

(b) at least one DNA fragment coding for an insecticidally active protein produced by a *Bacillus* strain, or coding for an insecticidally active truncated form of the above protein or coding for a protein having substantial sequence homology to the active protein,

the DNA fragments being linked so that the gene is expressed.

Claims 2-15, which depend from claim 1, recite preferred *Bacillus* species, promoters, and selectable markers.⁵ Independent claim 16 and claims 17-31 which depend therefrom are directed to a hybrid plasmid vector which includes the chimeric gene of claim 1. Claim 32 recites a bacterial strain. Independent claim 33 and claims 34-48 which depend therefrom recite a cyanobac-

terium which expresses the chimeric gene of claim 1. Claims 50-51 recite an insecticidal composition. Claim 52 recites a particular plasmid that appellants have deposited.

B. Appellants' Disclosure

In addition to describing the claimed invention in generic terms, appellants' specification discloses two particular species of *Bacillus* (*B. thuringiensis*, *B. sphaericus*) as sources of insecticidal protein; and nine genera of cyanobacteria (*Synechocystis*, *Anacystis*, *Synechococcus*, *Agmenellum*, *Aphanocapsa*, *Gloeocapsa*, *Nostoc*, *Anabaena* and *Ffremyllia*) as useful hosts.

The working examples relevant to the claims on appeal detail the transformation of a single strain of cyanobacteria, i.e., *Synechocystis* 6803. In one example, *Synechocystis* 6803 cells are transformed with a plasmid comprising (1) a gene encoding a particular insecticidal protein ("B.t. 8") from *Bacillus thuringiensis* var. *israelensis*, linked to (2) a particular promoter, the P_L promoter from the bacteriophage Lambda (a virus of *E. coli*). In another example, a different promoter, i.e., the *Synechocystis* 6803 promoter for the rubisco operon, is utilized instead of the Lambda P_L promoter.

C. The Prior Art

A total of eleven prior art references were cited and applied, in various combinations, against the claims on appeal.

The focus of Dzelzkalns,⁶ the primary reference cited against all of the rejected claims, is to determine whether chloroplast promoter sequences can function in cyanobacteria. To that end Dzelzkalns discloses the expression in cyanobacteria of a chimeric gene comprising a chloroplast promot-

DNA) via messenger RNA to ribosomes where a specific protein is made.

3. "Transformed" cyanobacteria are those that have successfully taken up the foreign *Bacillus* DNA such that the DNA information has become a permanent part of the host cyanobacteria, to be replicated as new cyanobacteria are generated.

4. "Expression" of a gene refers to the production of the protein which the gene encodes; more specifically, it is the process of transferring information from a gene (which consists of

5. In the context of the claimed invention, "selectable markers" or "marker genes" refer to antibiotic-resistance conferring DNA fragments, attached to the gene being expressed, which facilitate the selection of successfully transformed cyanobacteria.

6. 12 *Nucleic Acids Res.* 8917 (1984).

er sequence fused to a gene encoding the enzyme chloramphenicol acetyl transferase (CAT).⁷ Importantly, Dzelzkalns teaches the use of the CAT gene as a "marker" gene; this use of antibiotic resistance-conferring genes for selection purposes is a common technique in genetic engineering.

Sekar I,⁸ Sekar II,⁹ and Ganesan¹⁰ collectively disclose expression of genes encoding certain *Bacillus* insecticidal proteins in the bacterial hosts *B. megaterium*, *B. subtilis* and *E. coli*.

Friedberg¹¹ discloses the transformation of the cyanobacterium *Anacystis nidulans* R2 by a plasmid vector comprising the O_LP_L operator-promoter region and a temperature-sensitive repressor gene of the bacteriophage Lambda. While the cyanobacteria are attractive organisms for the cloning of genes involved in photosynthesis, Friedberg states, problems may still be encountered such as suboptimal expression of the cloned gene, detrimental effects on cell growth of overexpressed, highly hydrophobic proteins, and rapid turnover of some gene products. To address these problems, Friedberg teaches the use of the disclosed Lambda regulatory signals in plasmid vehicles which, it states, have "considerable potential for use as vectors the expression of which can be controlled in *Anacystis*...."

Miller¹² compares the initiation specificities *in vitro* of DNA-dependent RNA polymerases¹³ purified from two different species of cyanobacteria (*Fremyella diplosiphon* and *Anacystis nidulans*), as well as from *E. coli*.

7. Chloramphenicol is an antibiotic; CAT is an enzyme which destroys chloramphenicol and thus imparts resistance thereto.

8. 137 *Biochem. and Biophys. Res. Comm.* 748 (1986).

9. 33 *Gene* 151 (1985).

10. 189 *Mol. Gen. Genet.* 181 (1983).

11. 203 *Mol. Gen. Genet.* 505 (1986).

12. 140 *J. Bacteriology* 246 (1979).

13. RNA polymerase, the enzyme responsible for making RNA from DNA, binds at specific nucleotide sequences (promoters) in front of genes

Nierzwicki-Bauer¹⁴ identifies in the cyanobacterium *Anabaena* 7120 the start site for transcription of the gene encoding *rbcL*, the large subunit of the enzyme ribulose-1,5-bisphosphate carboxylase. It reports that the nucleotide sequence 14-8 base pairs preceding the transcription start site "resembles a good *Escherichia coli* promoter," but that the sequence 35 base pairs before the start site does not.

Chauvat¹⁵ discloses host-vector systems for gene cloning in the cyanobacterium *Synechocystis* 6803, in which the antibiotic resistance-conferring *neo* gene is utilized as a selectable marker.

Reiss¹⁶ studies expression in *E. coli* of various proteins formed by fusion of certain foreign DNA sequences with the *neo* gene.

Kolowsky¹⁷ discloses chimeric plasmids designed for transformation of the cyanobacterium *Synechococcus* R2, comprising an antibiotic-resistant gene linked to chromosomal DNA from the *Synechococcus* cyanobacterium.

Barnes, United States Patent No. 4,695,455, is directed to the treatment with stabilizing chemical reagents of pesticides produced by expression of heterologous genes (such as those encoding *Bacillus* proteins) in host microbial cells such as *Pseudomonas* bacteria. The host cells are killed by this treatment, but the resulting pesticidal compositions exhibit prolonged toxic activity when exposed to the environment of target pests.

in DNA, and then moves through the gene making an RNA molecule that includes the information contained in the gene. Initiation specificity is the ability of the RNA polymerase to initiate this process specifically at a site(s) on the DNA template.

14. 81 *Proc. Natl. Acad. Sci. USA* 5961 (1984).

15. 204 *Mol. Gen. Genet.* 185 (1986).

16. 30 *Gene* 211 (1984).

17. 27 *Gene* 289 (1984).

D. The Grounds of Rejection

1. The § 103 Rejections

Claims 1-6, 16-21, 33-38, 47-48 and 52 (which include all independent claims in the application) were rejected as unpatentable under 35 U.S.C. § 103 based upon Dzelzkalns in view of Sekar I or Sekar II and Ganesan. The examiner stated that Dzelzkalns discloses a chimeric gene capable of being highly expressed in a cyanobacterium, said gene comprising a promoter region effective for expression in a cyanobacterium operably linked to a structural gene encoding CAT. The examiner acknowledged that the chimeric gene and transformed host of Dzelzkalns differ from the claimed invention in that the former's structural gene encodes CAT rather than insecticidally active protein. However, the examiner pointed out, Sekar I, Sekar II, and Ganesan teach genes encoding insecticidally active proteins produced by *Bacillus*, and the advantages of expressing such genes in heterologous¹⁸ hosts to obtain larger quantities of the protein. The examiner contended that it would have been obvious to one of ordinary skill in the art to substitute the *Bacillus* genes taught by Sekar I, Sekar II, and Ganesan for the CAT gene in the vectors of Dzelzkalns in order to obtain high level expression of the *Bacillus* genes in the transformed cyanobacteria. The examiner further contended that it would have been obvious to use cyanobacteria as heterologous hosts for expression of the claimed genes due to the ability of cyanobacteria to serve as transformed hosts for the expression of heterologous genes. In the absence of evidence to the

contrary, the examiner contended, the invention as a whole was *prima facie* obvious.

Additional rejections were entered against various groups of dependent claims which we need not address here. All additional rejections were made in view of Dzelzkalns in combination with Sekar I, Sekar II, and Ganesan, and further in view of other references discussed in Part C above.

The Board affirmed the § 103 rejections, basically adopting the examiner's Answer as its opinion while adding a few comments. The legal conclusion of obviousness does not require absolute certainty, the Board added, but only a reasonable expectation of success, citing *In re O'Farrell*, 853 F.2d 894, 7 U.S.P.Q.2d 1673 (Fed. Cir.1988). In view of the disclosures of the prior art, the Board concluded, one of ordinary skill in the art would have been motivated by a reasonable expectation of success to make the substitution suggested by the examiner.

2. The § 112 Rejection

The examiner also rejected claims 1-48 and 50-51 under 35 U.S.C. § 112, first paragraph, on the ground that the disclosure was enabling only for claims limited in accordance with the specification as filed. Citing *Manual of Patent Examining Procedure* (MPEP) provisions 706.03(n)¹⁹ and (z)²⁰ as support, the examiner took the position that undue experimentation would be required of the art worker to practice the claimed invention, in view of the unpredictability in the art, the breadth of the claims, the limited number of working examples and the limited guidance provided

18. Denotes different species or organism.

19. MPEP 706.03(n), "Correspondence of Claim and Disclosure," provides in part:

In chemical cases, a claim may be so broad as to not be supported by [the] disclosure, in which case it is rejected as unwarranted by the disclosure....

20. MPEP 706.03(z), "Undue Breadth," provides in part:

[I]n applications directed to inventions in arts where the results are unpredictable, the disclosure of a single species usually does not provide an adequate basis to support generic claims. *In re Sol*, 1938 C.D. 723; 497 O.G.

546. This is because in arts such as chemistry it is not obvious from the disclosure of one species, what other species will work. *In re Dreshfield*, 1940 C.D. 351; 518 O.G. 255 gives this general rule: "It is well settled that in cases involving chemicals and chemical compounds, which differ radically in their properties it must appear in an applicant's specification either by the enumeration of a sufficient number of the members of a group or by other appropriate language, that the chemicals or chemical combinations included in the claims are capable of accomplishing the desired result." ...

in the specification. With respect to unpredictability, the examiner stated that

[t]he cyanobacteria comprise a large and diverse group of photosynthetic bacteria including large numbers of species in some 150 different genera including *Synechocystis*, *Anacystis*, *Synechococcus*, *Agmenellum*, *Nostoc*, *Anabaena*, etc. The molecular biology of these organisms has only recently become the subject of intensive investigation and this work is limited to a few genera. Therefore the level of unpredictability regarding heterologous gene expression in this large, diverse and relatively poorly studied group of procaryotes is high....

The Board affirmed, noting that "the limited guidance in the specification, considered in light of the relatively high degree of unpredictability in this particular art, would not have enabled one having ordinary skill in the art to practice the broad scope of the claimed invention without undue experimentation. *In re Fisher*, 427 F.2d 833, 166 U.S.P.Q. 18 (CCPA 1970)."

OPINION

A. Obviousness

[1] We first address whether the PTO erred in rejecting the claims on appeal as prima facie obvious within the meaning of 35 U.S.C. § 103. Obviousness is a legal question which this court independently reviews, though based upon underlying factual findings which we review under the clearly erroneous standard. *In re Woodruff*, 919 F.2d 1575, 1577, 16 U.S.P.Q.2d 1934, 1935 (Fed.Cir.1990).

[2] Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have

a reasonable expectation of success. See *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed.Cir.1988). Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure. *Id.*

[3] We agree with appellants that the PTO has not established the prima facie obviousness of the claimed subject matter. The prior art simply does not disclose or suggest the expression in cyanobacteria of a chimeric gene encoding an insecticidally active protein, or convey to those of ordinary skill a reasonable expectation of success in doing so. More particularly, there is no suggestion in Dzelzkalns, the primary reference cited against all claims, of substituting in the disclosed plasmid a structural gene encoding *Bacillus* insecticidal proteins for the CAT gene utilized for selection purposes. The expression of antibiotic resistance-conferring genes in cyanobacteria, without more, does not render obvious the expression of unrelated genes in cyanobacteria for unrelated purposes.

The PTO argues that the substitution of insecticidal *Bacillus* genes for CAT marker genes in cyanobacteria is suggested by the secondary references Sekar I, Sekar II, and Ganesan, which collectively disclose expression of genes encoding *Bacillus* insecticidal proteins in two species of host *Bacillus* bacteria (*B. megaterium* and *B. subtilis*) as well as in the bacterium *E. coli*. While these references disclose expression of *Bacillus* genes encoding insecticidal proteins in certain transformed bacterial hosts, nowhere do these references disclose or suggest expression of such genes in transformed cyanobacterial hosts.

To remedy this deficiency, the PTO emphasizes similarity between bacteria and cyanobacteria, namely, that these are both procaryotic organisms, and argues that this fact would suggest to those of ordinary skill the use of cyanobacteria as hosts for expression of the claimed chimeric genes. While it is true that bacteria and cyanobacteria are now both classified as procaryotes, that fact alone is not sufficient to motivate the art worker as the PTO con-

tends. As the PTO concedes, cyanobacteria and bacteria are not identical; they are classified as two separate divisions of the kingdom Procaryotae.²¹ Moreover, it is only in recent years that the biology of cyanobacteria has been clarified, as evidenced by references in the prior art to "blue-green algae." Such evidence of recent uncertainty regarding the biology of cyanobacteria tends to rebut, rather than support, the PTO's position that one would consider the cyanobacteria effectively interchangeable with bacteria as hosts for expression of the claimed gene.

At oral argument the PTO referred to additional secondary references, not cited against any independent claim (i.e., Friedberg, Miller, and Nierzwicki-Bauer), which it contended disclose certain amino acid sequence homology between bacteria and cyanobacteria. The PTO argued that such homology is a further suggestion to one of ordinary skill to attempt the claimed invention. We disagree. As with the Dzelzkalns, Sekar I, Sekar II, and Ganesan references discussed above, none of these additional references disclose or suggest that cyanobacteria could serve as hosts for expression of genes encoding *Bacillus* insecticidal proteins. In fact, these additional references suggest as much about *differences* between cyanobacteria and bacteria as they do about similarities. For example, Nierzwicki-Bauer reports that a certain nucleotide sequence (i.e., the -10 consensus sequence) in a particular cyanobacterium resembles an *E. coli* promoter, but that another nearby nucleotide sequence (the -35 region) does not. While Miller speaks of certain promoters of the bacteriophage Lambda that are recognized by both cyanobacterial and *E. coli* RNA polymerases, it also discloses that these promoters exhibited differing strengths when exposed to the different polymerases. Differing sensitivities of the respective polymerases to an inhibitor are also disclosed, suggesting differences in the structures of the initiation complexes.

The PTO asks us to agree that the prior art would lead those of ordinary skill to conclude that cyanobacteria are attractive hosts for expression of any and all heterologous genes. Again, we can not. The relevant prior art does indicate that cyanobacteria are attractive hosts for expression of both native and heterologous *genes involved in photosynthesis* (not surprisingly, for the capability of undergoing oxygenic photosynthesis is what makes the cyanobacteria unique among procaryotes). However, these references do not suggest that cyanobacteria would be equally attractive hosts for expression of *unrelated* heterologous genes, such as the claimed genes encoding *Bacillus* insecticidal proteins.

In *O'Farrell*, this court affirmed an obviousness rejection of a claim to a method for producing a "predetermined protein in a stable form" in a transformed bacterial host. 853 F.2d at 895, 7 U.S.P.Q.2d at 1674. The cited references included a prior art publication (the Polisky reference) whose three authors included two of the three coinventor-appellants. The main difference between the prior art and the claim at issue was that in Polisky, the heterologous gene was a gene for ribosomal RNA, while the claimed invention substituted a gene coding for a predetermined protein. *Id.* at 901, 7 U.S.P.Q.2d at 1679. Although, as the appellants therein pointed out, the ribosomal RNA gene is not normally translated into protein, Polisky mentioned preliminary evidence that the transcript of the ribosomal RNA gene was translated into protein, and further predicted that if a gene coding for a protein were to be substituted, extensive translation might result. *Id.* We thus affirmed, explaining that

the prior art explicitly suggested the substitution that is the difference between the claimed invention and the prior art, and presented preliminary evidence suggesting that the [claimed] method could be used to make proteins.

....

21. *Stedman's Medical Dictionary* 1139 (24th ed. 1982) (definition of "Procaryotae"). Procaryotic organisms are commonly classified according to the following taxonomic hierarchy: Kingdom;

Division; Class; Order; Family; Genus; Species. 3 *Bergey's Manual of Systematic Bacteriology* 1601 (1989).

... Polisky contained detailed enabling methodology for practicing the claimed invention, a suggestion to modify the prior art to practice the claimed invention, and evidence suggesting that it would be successful.

Id. at 901-02, 7 U.S.P.Q.2d at 1679-80.

In contrast with the situation in *O'Farrell*, the prior art in this case offers no suggestion, explicit or implicit, of the substitution that is the difference between the claimed invention and the prior art. Moreover, the "reasonable expectation of success" that was present in *O'Farrell* is not present here. Accordingly, we reverse the § 103 rejections.

B. Enablement

[4] The first paragraph of 35 U.S.C. § 112 requires, *inter alia*, that the specification of a patent enable any person skilled in the art to which it pertains to make and use the claimed invention. Although the statute does not say so, enablement requires that the specification teach those in the art to make and use the invention without "undue experimentation." *In re Wands*, 858 F.2d 731, 737, 8 U.S.P.Q.2d 1400, 1404 (Fed.Cir.1988). That *some* experimentation may be required is not fatal; the issue is whether the amount of experimentation required is "undue." *Id.* at 736-37, 8 U.S.P.Q.2d at 1404. Enablement, like obviousness, is a question of law which we independently review, although based upon underlying factual findings which we review for clear error. *See id.* at 735, 8 U.S.P.Q.2d at 1402.

[5] In response to the § 112 rejection, appellants assert that their invention is "pioneering," and that this should entitle them to claims of broad scope. Narrower claims would provide no real protection, appellants argue, because the level of skill in this art is so high, art workers could easily avoid the claims. Given the disclosure in their

specification, appellants contend that any skilled microbiologist could construct vectors and transform many different cyanobacteria, using a variety of promoters and *Bacillus* DNA, and could easily determine whether or not the active *Bacillus* protein was successfully expressed by the cyanobacteria.

The PTO made no finding on whether the claimed invention is indeed "pioneering," and we need not address the issue here. With the exception of claims 47 and 48, the claims rejected under § 112 are not limited to any particular genus or species of cyanobacteria. The PTO's position is that the cyanobacteria are a diverse and relatively poorly studied group of organisms, comprising some 150 different genera, and that heterologous gene expression in cyanobacteria is "unpredictable." Appellants have not effectively disputed these assertions. Moreover, we note that only one particular species of cyanobacteria is employed in the working examples of appellants' specification, and only nine genera of cyanobacteria are mentioned in the entire document.

Taking into account the relatively incomplete understanding of the biology of cyanobacteria as of appellants' filing date, as well as the limited disclosure by appellants of particular cyanobacterial genera operative in the claimed invention, we are not persuaded that the PTO erred in rejecting claims 1-46 and 50-51 under § 112, first paragraph. There is no reasonable correlation between the narrow disclosure in appellants' specification and the broad scope of protection sought in the claims encompassing gene expression in any and all cyanobacteria. *See In re Fisher*, 427 F.2d 833, 839, 166 U.S.P.Q. 18, 24 (CCPA 1970) (the first paragraph of § 112 requires that the scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification).²² Accordingly,

22. The enablement rejection in this case was not based upon a post-filing date state of the art, as in *In re Hogan*, 559 F.2d 595, 605-07, 194 U.S.P.Q. 527, 536-38 (CCPA 1977). *See also United States Steel Corp. v. Phillips Petroleum Co.*, 865 F.2d 1247, 1251, 9 U.S.P.Q.2d 1461, 1464 (Fed.Cir.1989) (citing *Hogan*); *Hormone*

Research Found., Inc. v. Genentech, Inc., 904 F.2d 1558, 1568-69, 15 U.S.P.Q.2d 1039, 1047-48 (Fed.Cir.1990) (directing district court, on remand, to consider effect of *Hogan* and *United States Steel* on the enablement analysis of *Fisher*), *cert. dismissed*, — U.S. —, 111 S.Ct. 1434, 113 L.Ed.2d 485 (1991). We therefore do not

we affirm the § 112 rejection as to those claims.

[6] In so doing we do *not* imply that patent applicants in art areas currently denominated as "unpredictable" must never be allowed generic claims encompassing more than the particular species disclosed in their specification. It is well settled that patent applicants are not required to disclose every species encompassed by their claims, even in an unpredictable art. *In re Angstadt*, 537 F.2d 498, 502-03, 190 U.S.P.Q. 214, 218 (CCPA 1976). However, there must be sufficient disclosure, either through illustrative examples or terminology,²³ to teach those of ordinary skill how to make and how to use the invention as broadly as it is claimed. This means that the disclosure must adequately guide the art worker to determine, without undue experimentation, which species among all those encompassed by the claimed genus possess the disclosed utility. Where, as here, a claimed genus represents a diverse and relatively poorly understood group of microorganisms, the required level of disclosure will be greater than, for example, the disclosure of an invention involving a "predictable" factor such as a mechanical or electrical element. *See Fisher*, 427 F.2d at 839, 166 U.S.P.Q. at 24. In this case, we agree with the PTO that appellants' limited disclosure does not enable one of ordinary skill to make and use the invention as now recited in claims 1-46 and 50-51 without undue experimentation.

Remaining dependent claim 47 recites a cyanobacterium which expresses the chimERIC gene of claim 1, wherein the cyanobacterium is selected from among the genera *Anacystis* and *Synechocystis*. Claim 48, which depends from claim 47, is limited to the cyanobacterium *Synechocystis* 6803. The PTO did not separately address these claims, nor indicate why they should be treated in the same manner as the claims encompassing all types of cyanobacteria.

consider the effect of *Hogan* and its progeny on *Fisher's* analysis of when an inventor should be allowed to "dominate the future patentable inventions of others." *Fisher*, 427 F.2d at 839, 166 U.S.P.Q. at 24.

Although these claims are not limited to expression of genes encoding particular *Bacillus* proteins, we note what appears to be an extensive understanding in the prior art of the numerous *Bacillus* proteins having toxicity to various insects. The rejection of claims 47-48 under § 112 will not be sustained.

CONCLUSION

The rejection of claims 1-48 and 50-52 under 35 U.S.C. § 103 is *reversed*. The rejection of claims 1-46 and 50-51 under 35 U.S.C. § 112, first paragraph, is *affirmed* and the rejection of claims 47 and 48 thereunder is *reversed*.

AFFIRMED-IN-PART, REVERSED-IN-PART.

MAYER, Circuit Judge, dissenting.

An appeal is not a second opportunity to try a case or prosecute a patent application, and we should not allow parties to "undertake to retry the entire case on appeal." *Perini America, Inc. v. Paper Converting Machine Co.*, 832 F.2d 581, 584, 4 U.S.P.Q.2d 1621, 1624 (Fed.Cir.1987); *Eaton Corp. v. Appliance Valves Corp.*, 790 F.2d 874, 877, 229 U.S.P.Q. 668, 671 (Fed. Cir.1986). But that is precisely what the court has permitted here. The PTO conducted a thorough examination of the prior art surrounding this patent application and concluded the claims would have been obvious. The board's decision based on the examiner's answer which comprehensively explains the rejection is persuasive and shows how the evidence supports the legal conclusion that the claims would have been obvious. Yet, the court ignores all this and conducts its own examination, if you will, as though the examiner and board did not exist. Even if I thought this opinion were more persuasive than the board's, I could

23. The first paragraph of § 112 requires nothing more than *objective* enablement. *In re Marzocchi*, 439 F.2d 220, 223, 169 U.S.P.Q. 367, 369 (CCPA 1971). How such a teaching is set forth, either by the use of illustrative examples or by broad terminology, is irrelevant. *Id.*

not join it because it misperceives the role of the court.

The scope and content of the prior art, the similarity between the prior art and the claims, the level of ordinary skill in the art, and what the prior art teaches are all questions of fact. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 693-94, 15 L.Ed.2d 545, 148 U.S.P.Q. 459, 467 (1966); *Jurgens v. McKasy*, 927 F.2d 1552, 1560, 18 U.S.P.Q.2d 1031, 1037 (Fed.Cir.1991). And "[w]here there are two permissible views of the evidence, the factfinder's choice between them cannot be clearly erroneous." *Anderson v. City of Bessemer City*, 470 U.S. 564, 574, 105 S.Ct. 1504, 1511-12, 84 L.Ed.2d 518 (1985). The mere denomination of obviousness as a question of law does not give the court license to decide the factual matters afresh and ignore the requirement that they be respected unless clearly erroneous. *In re Woodruff*, 919 F.2d 1575, 1577, 16 U.S.P.Q.2d 1934, 1935 (Fed.Cir.1990); *In re Kulling*, 897 F.2d 1147, 1149, 14 U.S.P.Q.2d 1056, 1057 (Fed. Cir.1990). There may be more than one way to look at the prior art, but on this record we are bound by the PTO's interpretation of the evidence because it is not clearly erroneous and its conclusion is unassailable. I would affirm on that basis.



LEVERNIER CONSTRUCTION,
INC., Plaintiff-Appellee,

v.

The UNITED STATES, Defendant-
Appellant.

No. 91-5058.

United States Court of Appeals,
Federal Circuit.

Oct. 22, 1991.

Construction contractor sought attorney fees and expenses under the Equal

Access to Justice Act (EAJA) after settlement of equitable adjustment claim. On original hearing, the Claims Court, Reginald W. Gibson, J., 21 Cl.Ct. 683, granted application in part and denied it in part. Contractor sought reconsideration. The Claims Court, 22 Cl.Ct. 247, granted the motion, and held that contractor was entitled to recover additional amount representing consultant fees and expenses. Government appealed. The Court of Appeals, Bennett, Senior Circuit Judge, held that: (1) prosecution of equitable adjustment claim before contracting officer was not a "civil action" within meaning of the EAJA, and thus contractor was not entitled to recover consultant fees incurred in preparation of equitable adjustment claim; (2) Claims Court erred in applying 18% cost of living adjustment (COLA) to paralegal fees awarded under the EAJA; and (3) it was error to apply 18% (COLA) to hourly rates of attorneys whose time was claimed at \$75 an hour.

Reversed.

1. United States ⇐147(12)

Prosecution of equitable adjustment claim before contracting officer was not "civil action" within meaning of the Equal Access to Justice Act (EAJA), and thus contractor was not entitled to recover fees incurred by contract claim consultant for preparation of equitable adjustment claim. 28 U.S.C.A. § 2412.

See publication Words and Phrases for other judicial constructions and definitions.

2. United States ⇐147(5)

Equal Access to Justice Act (EAJA) is a waiver of sovereign immunity which must be strictly construed. 28 U.S.C.A. § 2412.

3. United States ⇐147(4)

In formulating an award of attorney fees under the Equal Access to Justice Act (EAJA), court may adjust statutory cap governing rate of attorney fees upward to account for an increase in cost of living. 28 U.S.C.A. § 2412(d)(2)(A)(ii).

that the mark PAN AMERICAN on toy trucks would falsely suggest a connection to the USOC or the Pan American games, and that the USOC did not prove that Toy Truck's intended use of this mark would be likely to cause confusion as to the source or sponsorship of the toy and model trucks. On these grounds the Board dismissed the USOC's opposition.

[1] It was improper for the Board to refuse to consider the 1998 enactment. The general rule is that a tribunal must apply the law as it exists at the time of the decision. *See Saint Francis College v. Al-Khazraji*, 481 U.S. 604, 608 (1987) ("The usual rule is that federal cases should be decided in accordance with the law existing at the time of decision.") Although this rule is subject to exceptions when justice requires, such as when vested rights are materially affected by the change in law, *Landgraf v. USI Film Prods.*, 511 U.S. 244, 265 (1994), no such reason has been proffered by Toy Truck Lines. Since this application was based solely on "intent to use," with no representation of actual use, there is no suggestion of the existence of any vested property right or investment in trademark use. *Cf. id.* at 270 (determination of statutory retroactivity requires consideration of "whether the new provision attaches new legal consequences to events completed before its enactment"). In this case there is no suggestion that application of the 1998 Act would impair any rights possessed before the enactment, increase Toy Truck's liability, or impose new duties for any past conduct. *See id.* at 280; *Lowry v. Secretary of Health and Human Services*, 189 F.3d 1378, 1380-81 (Fed. Cir. 1999). The Board was promptly advised of the new statute and its direct relationship to trademark use of "Pan American." The USOC's opposition to Toy Truck's application for registration could not be denied without consideration of the effect of the 1998 Act.

The unambiguous statutory language of § 220506(a)(4) reserves to the USOC the commercial use (other than "grandfathered" uses) of the disputed words PAN AMERICAN, without requiring any showing of likelihood of confusion or false connection. As the Court stated in *San Francisco Arts & Athletics, Inc. v. United States Olympic Comm.*, 483 U.S. 522, 531 [3 USPQ2d 1145] (1987) (concerning the Amateur Sports Act of 1978):

The protection granted to the USOC's use of the Olympic words and symbols differs from the normal trademark protection in two respects: the USOC need not prove that a contested use is likely to cause confusion, and an unauthorized user of the word does not have available the normal statutory defenses.

Id. at 531. Accordingly, the Board's findings that there is no likelihood of confusion or false suggestion of connection are irrelevant to the issue. It was incorrect for the Board to dismiss the USOC's opposition to Toy Truck's registration, for as a matter of law the USOC must prevail. We reverse the Board's dismissal of the USOC's opposition, and remand for further proceedings consistent with this decision.

No costs.

REVERSED AND REMANDED

Ex parte Yamamoto

U.S. Patent and Trademark Office Board of Patent Appeals and Interferences

Appeal No. 97-1926

November 2, 2000

(Unpublished)

PATENTS

[1] Patentability/Validity — Obviousness — Evidence of (§ 115.0906)

Rejection of patent applicant's claims under 35 U.S.C. § 103 is reversed, since examiner has merely conjectured and speculated that, because prior art composition is directed to stabilized higher aliphatic aldehyde compounds, it would be considered by one of ordinary skill in art to be suitable for stabilization of claimed functional group containing compounds, and since such speculation is not sufficient for establishing prima facie case of obviousness.

Appeal from examiner's rejection of claims in patent application.

Patent application of Akira Yamamoto, Toyohisa Sakurada, and Ruichi Saguchi (se-

rial no. 07/978,036). Applicants appeal from final rejection, under 35 U.S.C. § 103, of all claims pending in application. Reversed.

[Editor's note: The Board of Patent Appeals and Interferences states that this opinion was not written for publication, and is not binding precedent of the board.]

James W. Badie, of Stoll, Miskin, Previto, Hoffman & Badie, New York, N.Y., for applicants.

Before Garris, Lieberman, and Tierney, administrative patent judges.

Lieberman, J.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 1 through 3, which are all the claims pending in this application.

THE INVENTION

The invention is directed to a method for the stabilization of a long-chain unsaturated aliphatic ester, alcohol, ketone or hydrocarbon compound having at least 10 carbon atoms and at least one double bond. The method requires admixing the compound with 2-(2'-hydroxy-5'-methylphenyl) benzotriazole and a phenolic compound. Each stabilizer is added in an amount of 0.1 to 10% by weight of the long-chain aliphatic unsaturated compound.

THE CLAIM

Claim 1 is illustrative of appellants' invention and is reproduced below:

1. A method for the stabilization of a long-chain unsaturated aliphatic ester, alcohol, ketone or hydrocarbon compound having at least 10 carbon atoms and at least one double bond in a molecule, which comprises admixing the compound with 2-(2'-hydroxy-5'-methylphenyl) benzotriazole and a phenolic compound as an antioxidant each in an amount in the range from 0.1 to 10% by weight based on the amount of the long-chain aliphatic unsaturated compound.

THE REFERENCE OF RECORD

As evidence of obviousness, the examiner relies upon the following reference.

Ishihara et al. 4,568,771 Feb. 4, 1986

THE REJECTION

Claims 1 through 3 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ishihara.

OPINION

We agree with the appellants that the rejection under 35 U.S.C. § 103 is not well founded. Accordingly, we do not sustain this rejection.

The Rejection under 35 U.S.C. § 103

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability," whether on the grounds of anticipation or obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We find that Ishihara discloses a method for stabilizing an aliphatic higher aldehyde compound by admixing the compound with a stabilizer selected from the group consisting of salicylic acid compounds and benzotriazole compounds among others. See column 2, lines 4-22. The stabilizing compounds are present in an amount of 0.01 to 10% by weight of the aldehyde compound. See column 2, lines 22-23. We find that among the compounds disclosed are 2-(2'-hydroxy-5'-methylphenyl) benzotriazole. See column 2, lines 66-67 and claim 1. We further find that among the compounds exemplified is BHT, i.e., Di-tert-butyl-p-cresol. See Tables 1 and 2.

The basic premise of the rejection is that although Ishihara differs from the claimed subject matter in disclosing the stabilization of a pheromone which just happens to be an aldehyde, one of ordinary skill in the art "having knowledge of the ability of the combination of BHT and a *hydroquinone compound* to protect an aldehyde pheromone from oxidation, would have sufficient motivation based on knowledge[d] [sic] of the nature of general oxidative reactions (as stated above) to use the same combination to protect pheromones having *other oxidative functional groups*." See Answer, pages 4 and 5. We disagree.

[1] This premise is not well taken because the examiner has not established by evidence or explanation that long-chain unsaturated aliphatic ester, alcohol, ketone or hydrocarbons are stabilized by the combination of stabilizers utilized by Ishihara of record, or that one of ordinary skill in the art would have had a

reasonable expectation that Ishihara's composition would be suitable for that use. The examiner has merely conjectured and speculated that because Ishihara's composition is directed to stabilized higher aliphatic aldehyde compounds it would be considered by one of ordinary skill in the art to be suitable for the stabilization of the claimed functional group containing compounds, and such speculation is not sufficient for establishing a *prima facie* case of obviousness. It is well settled that a rejection based on § 103 must rest upon a factual basis rather than conjecture, or speculation. "Where the legal conclusion [of obviousness] is not supported by the facts it cannot stand." *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967); see also *In re Sporck*, 301 F.2d 686, 690, 133 USPQ 360, 364 (CCPA 1962). Accordingly, we reverse the rejection of claims 1 through 3.

DECISION

The rejection of claims 1 through 3 under 35 U.S.C. § 103 as being unpatentable over Ishihara is reversed.

REVERSED

Microware Systems Corp. v. Apple Computer Inc.

U.S. Court of Appeals
Eighth Circuit

No. 00-2006SI

Decided January 16, 2001

TRADEMARKS AND UNFAIR TRADE PRACTICES

[1] **Infringement; conflicts between marks — Likelihood of confusion — Particular marks — Confusion not likely (§ 335.0304.05)**

Infringement; conflicts between marks — Defenses — Fair use (§ 335.1003)

Summary judgment was properly granted in favor of trademark infringement defendant who used "Mac OS 9" mark for its personal computers, since defendant's products and plaintiff's "OS-9" real-time operating systems are sold in different markets, since plaintiff

did not claim lost sales, and since defendant's mark accurately describes, in manner customary in industry, current version of defendant's product.

Appeal from the U.S. District Court for the Southern District of Iowa, Pratt, J.

Action by Microware Systems Corp. against Apple Computer Inc. for trademark infringement. Following denial of plaintiff's preliminary injunction motion and grant of summary judgment in favor of defendant, plaintiff appealed. Affirmed.

Deborah M. Tharnish, David Alan Tank, Daniel A. Rosenberg, and Kent A. Herink, of Davis & Brown, Des Moines, Iowa, for plaintiff-appellant.

George A. Riley, of O'Melveny & Myers, San Francisco, Calif.; Edmund J. Sease and Jeffrey D. Harty, of Zarley & McKee, Des Moines, for defendant-appellee.

Before Arnold, Fagg, and Bowman, circuit judges.

Per curiam.

The plaintiff, Microware Systems Corporation, owns a registered trademark, "OS-9," on its software products, which are real-time operating systems. The defendant, Apple Computer, Inc., calls the current generation of its personal computer "MAC OS 9." Microware brought this suit for trademark infringement. The District Court¹ denied Microware's motion for a preliminary injunction and granted Apple's motion for summary judgment, holding as a matter of law that Apple had established the defense of fair use.

[1] We affirm. The evidence of confusion was minimal. Microware and Apple sold, for the most part, to entirely different markets. Microware does not claim it lost any sales. "MAC OS 9" accurately describes, in a fashion customary in the industry, the current version of Apple's product. For the rest, we refer the reader to the able district judge's full opinion, with which we agree in substance.

Affirmed.

¹ The Hon. Robert W. Pratt, United States District Judge for the Southern District of Iowa.